Mac OS X

State of the Union

Bertrand Serlet

SVP, Apple Software

WWDC2004

Tiger

200 New Features

A Platform for Innovation

Best Practices for Building Applications

Agenda

- **Best practices**
  - For user features
  - For implementation
- **Examples from Tiger technologies**
- **Impact of engine addition**
- **Fun with cars**

Scott Forstall

VP, Platform Experience

Best Practices

Top X

Marshall

Best Practices

Top XI

#11: Processor-Independent

#11: Processor-Independent

#11: Processor-Independent

#11: Processor-Independent

#11: Processor-Independent

#11: Processor-Independent

#11: Processor-Independent

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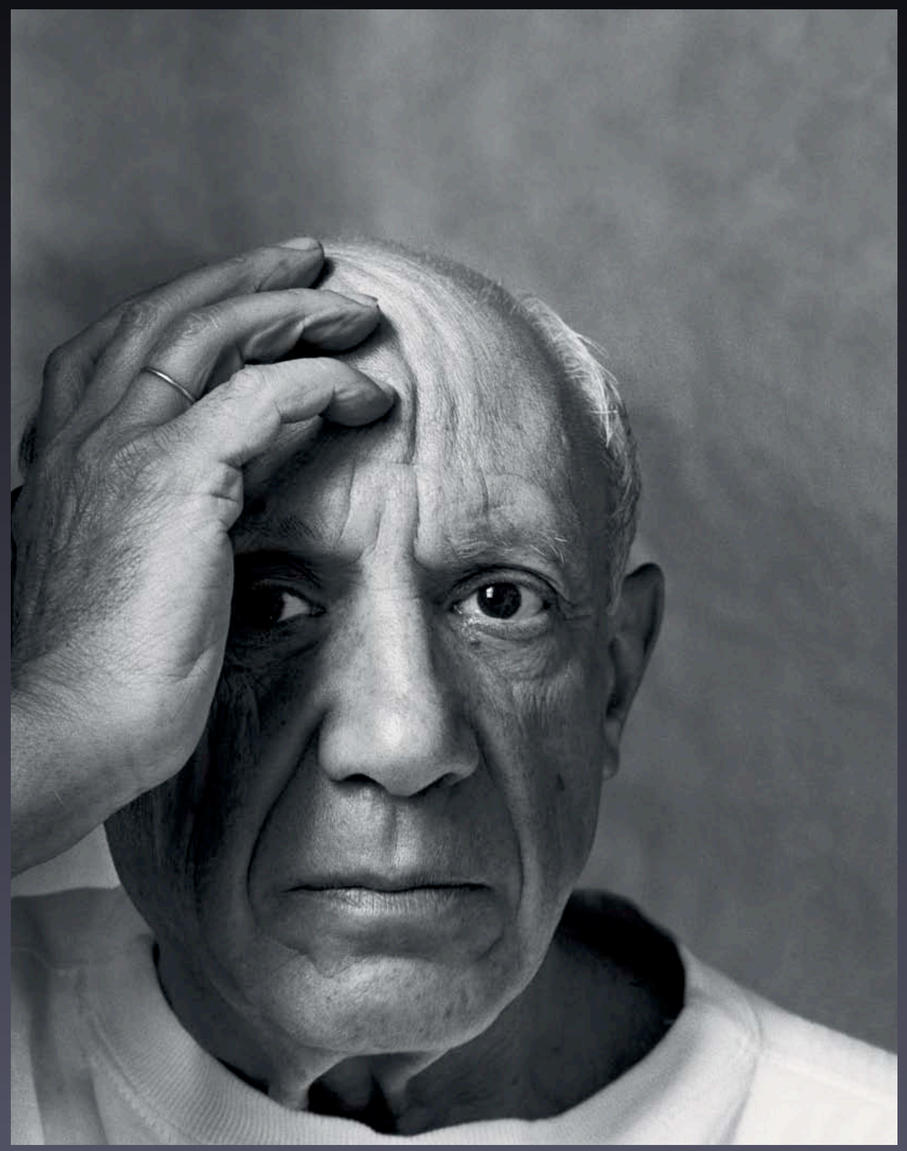
#11: Processor-Independent

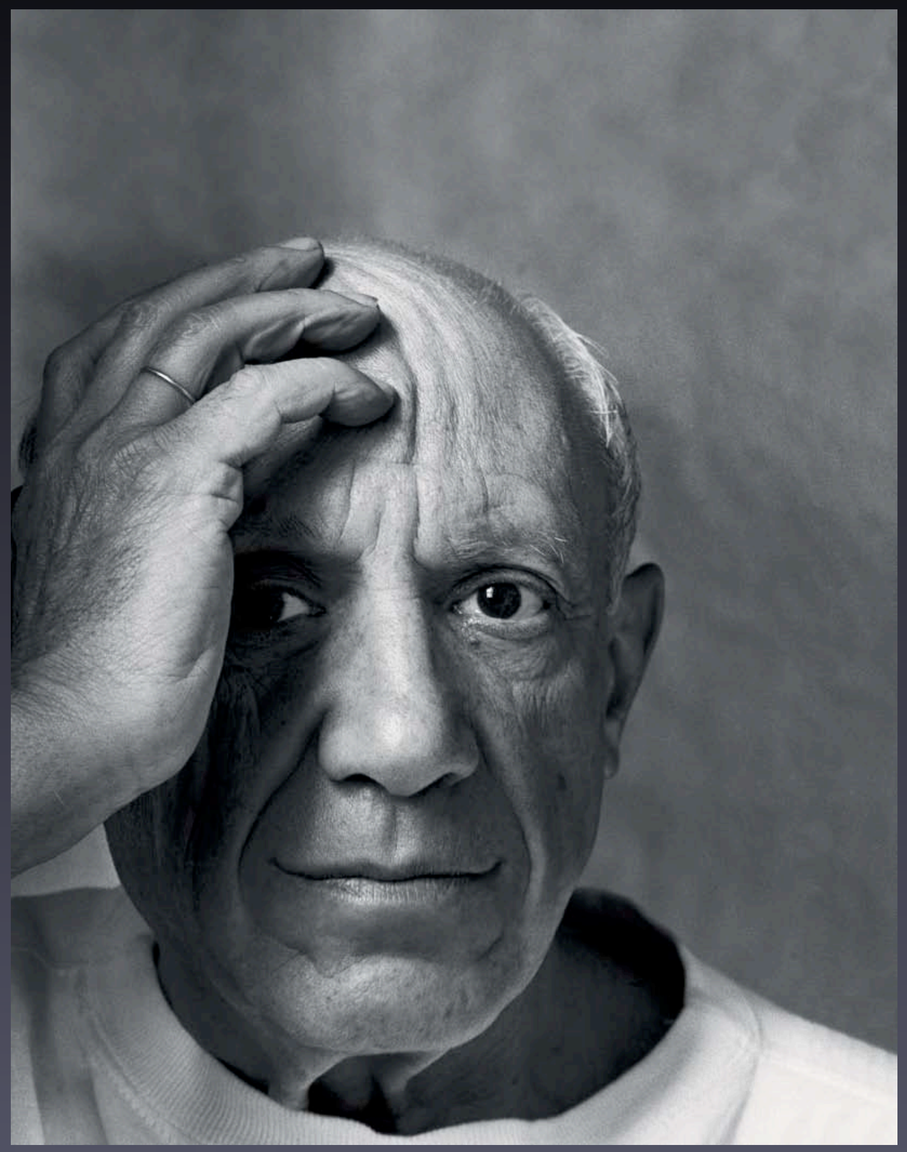
#11: Processor-Independent

#11: Processor-Independent



How much
work is it?

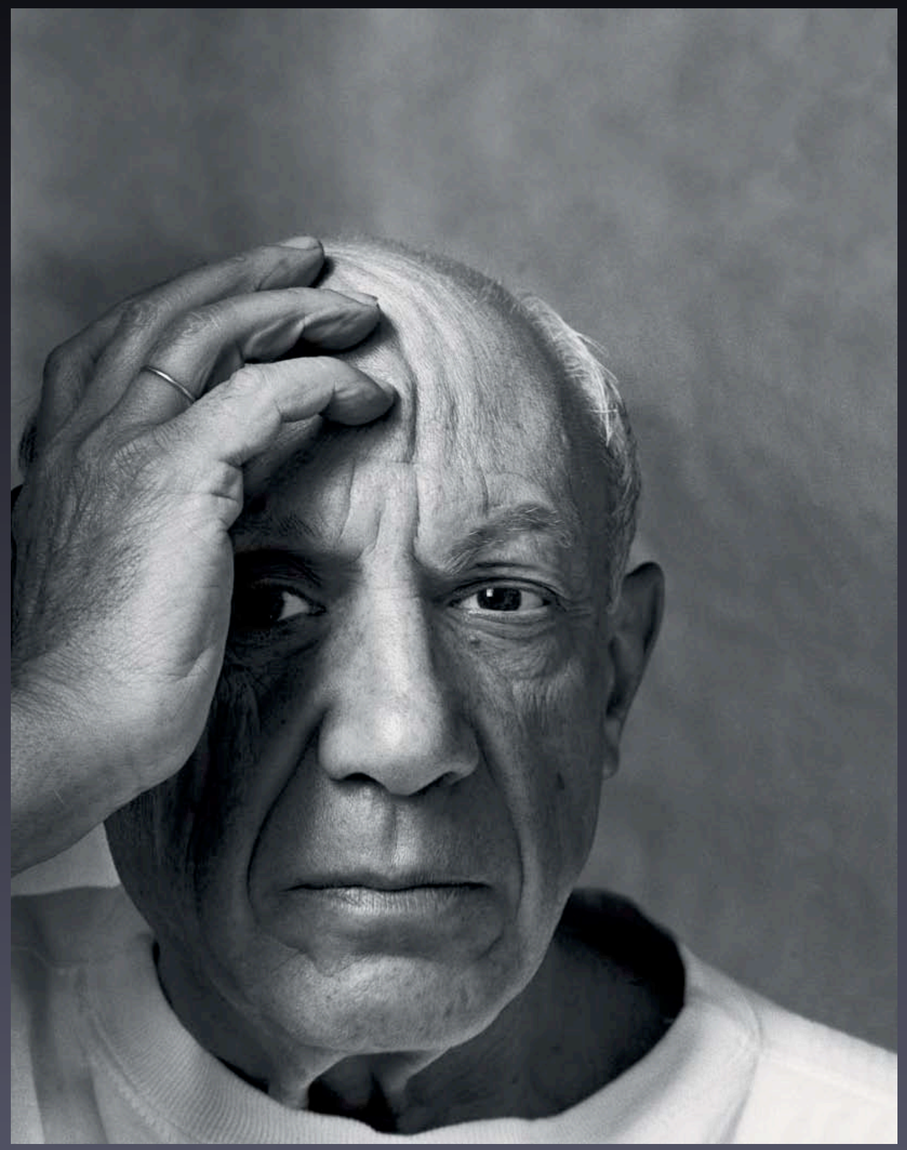
#11: Processor-Independent



How much work is it?

Very little

#11: Processor-Independent



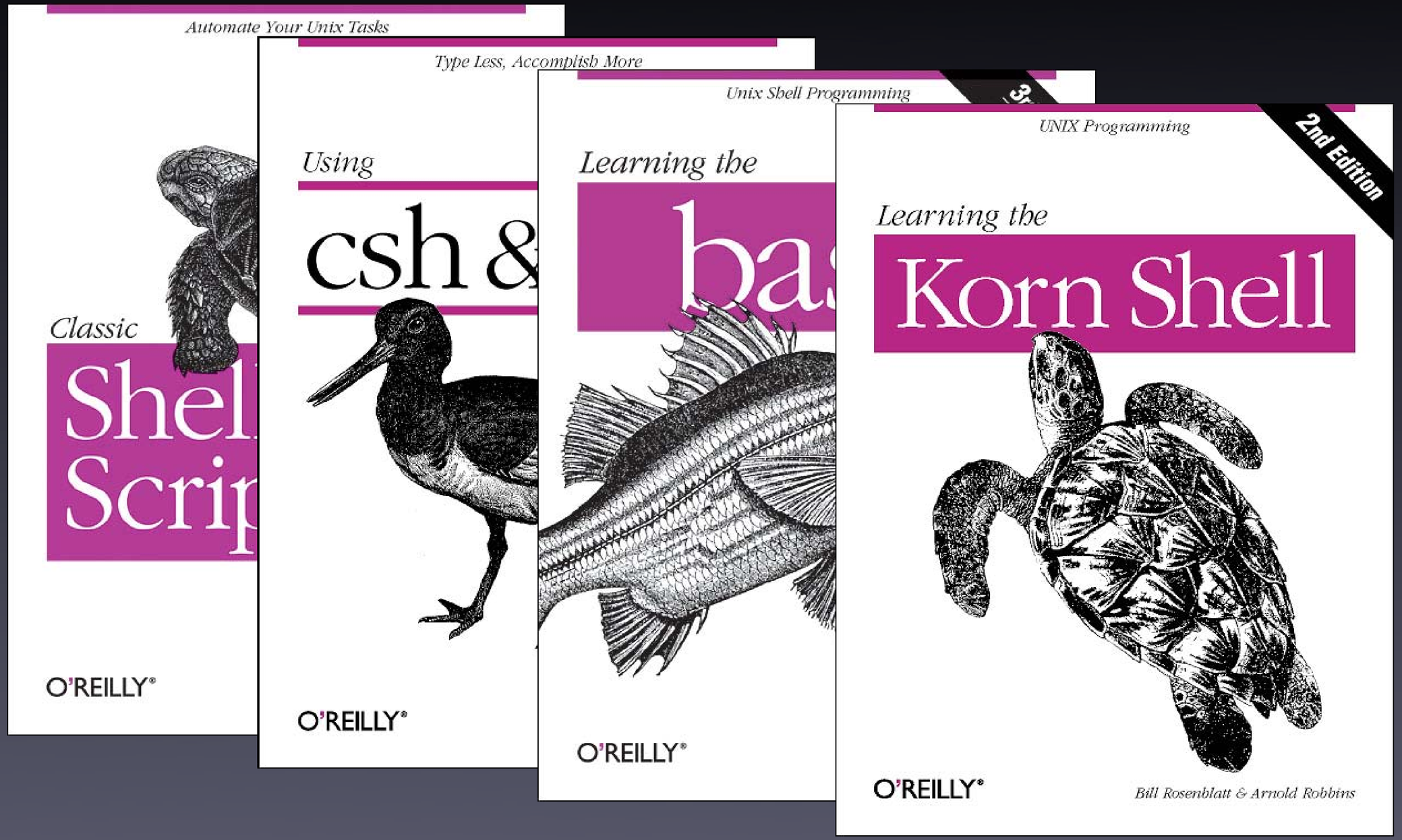
How much work is it?

It depends

Type of Project
1.
2.
3.
4.

Type of Project
1. Scripts and Java projects
2.
3.
4.

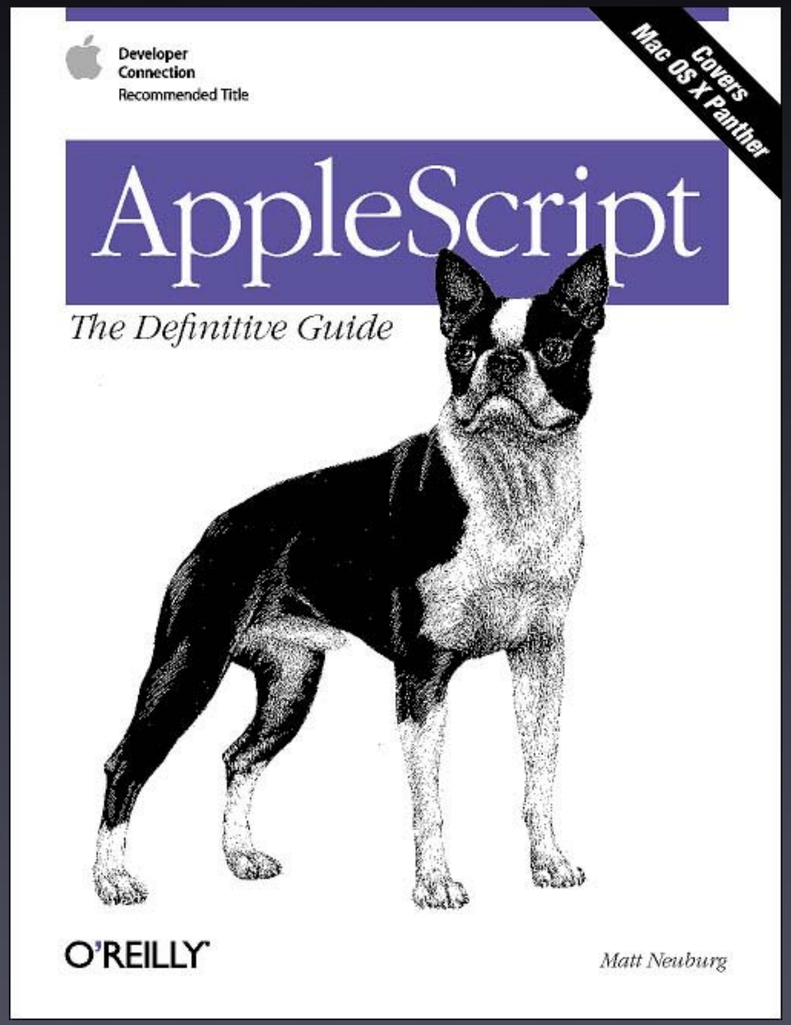
Scripts

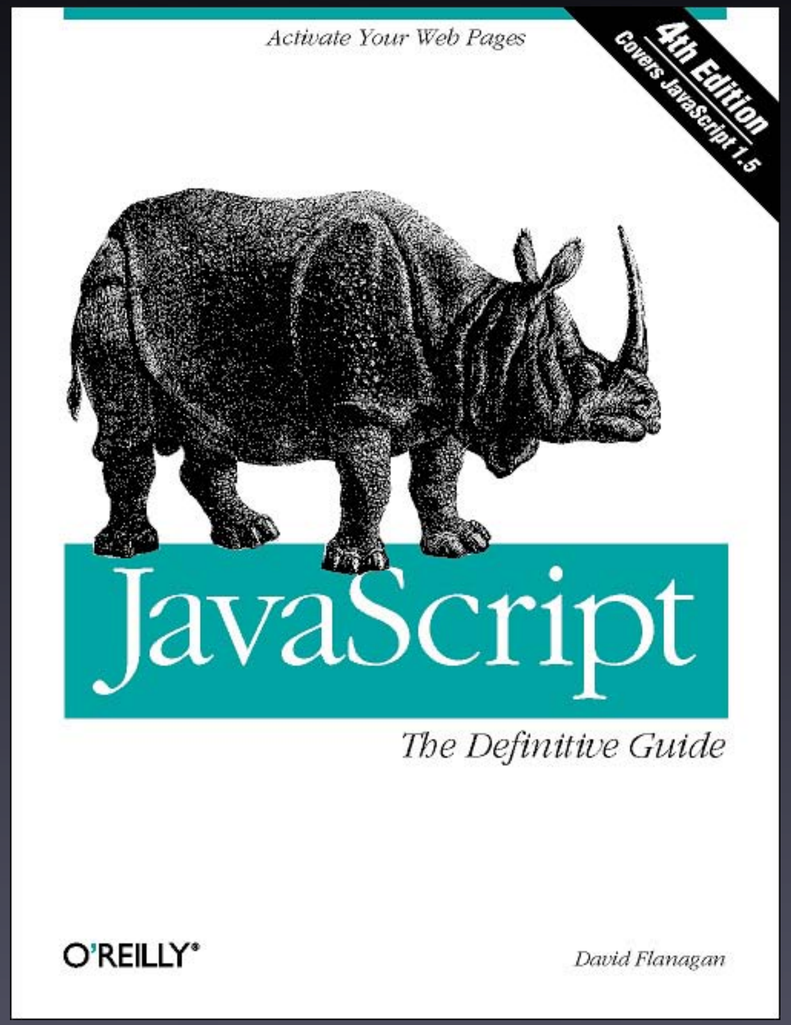

Automate Your Unix Tasks
Classic
Shell
Scrip
O'REILLY®
Type Less, Accomplish More
Using
csh &
O'REILLY®
Unix Shell Programming
Learning the
bas
O'REILLY®
UNIX Programming
2nd Edition
Learning the
Korn Shell
O'REILLY®
Bill Rosenblatt & Arnold Robbins

Scripts

A Pain-Free Introduction to Building Interactive Web Sites
Object-Oriented Programming
2nd Edition
Covers Python 2.3
Learning
Python
Mark Lutz & David Ascher
O'REILLY

Scripts


Developer
Connection
Recommended Title
Covers
Mac OS X Panther
AppleScript
The Definitive Guide
O'REILLY
Matt Neuburg


Activate Your Web Pages
4th Edition
Covers JavaScript 1.5
JavaScript
The Definitive Guide
O'REILLY
David Flanagan

Scripts

Scripts

Finder File Edit View Go Window Help

Mon 1:15 PM

Spotlight National Park

Show all (203)

Top Hit — Confirmation of reservation

Contacts — Ahwahnee Hotel; Old Faithful Visitor Center

Images — Deer; Bison Sunset; Geyser

Events & To Do's — Yosemite Trip May 2005; Yellowstone Trip December…; Bryce Canyon Trip June 2004

Mail Messages — Confirmation of reservation; Can I come?; Re: Where should we stay?; Where should we stay?

PDF Documents — Ahwahnee Hotel – Overview; Bryce Canyon map; Yellowstone Park map; Yosemite Valley Hiking trails; Old Faithful Lodge – Overvi…

Folders — Yosemite; Bryce Canyon

Spotlight Preferences…

Inbox

Inbox 20
Drafts
Sent
Trash
Junk

From	Subject
Kurt Russel	No escape
Avie Tevanian	Are you gonna go r
Scott Forstall	Check out this Tige
Heather Snow	Let's do this…Mon
Scott Forstall	Monday Review No
Greg Christie	Contact List for Mo
Bas Ording	Work on Server for
Bertrand Serlet	Review this Monda
Chris Cornell	Black Hole Sun
Lenny Kravitz	Where are we runn

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Date: December 5, 2004 8:05 PM PST
To: Steve Jobs
1 Attachment, 367 KB Save Slidesho

Spotlight: National Park

203 Results — National Park

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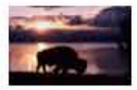
Images

Deer — June 27 3:40 PM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Roadside Rock — June 27 3:18 PM

Bison up close — June 27 11:19 AM

Geyser — June 27 10:21 AM

13 more…

Events & To Do's

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117 more…

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Yosemite Valley hiking trails
Old Faithful Lodge – Overview

6 more…

Folders

Yosemite
Bryce Canyon
Yellowstone
Zion

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Where should we stay?
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Bryce Canyon map
Yellowstone Park map
Yosemite Valley Hiking trails
Old Faithful Lodge - Overvi...
Yosemite
Bryce Canyon
Spotlight Preferences...
Translate from English
French Fries
To French
Pommes Frites
NASDAQ 3450.05 + 4.50
NYSE 14535.44 + 3.98
AAPL 124.03 + 7.36
MSFT 18.23 - 1.34
PIXR 119.23 + 3.32
AMZN 5.23 + 0.12
Quotes delayed by 20 mins
Imagine
3:19
Dictionary Thesaurus
meek
meek |mēk|
adjective
quiet, gentle, and easily imposed on; submissive : I used to call her Miss Mouse because she was so meek and mild | the meek compliance of our politicians.
DERIVATIVES
meek•ly adverb
meek•ness noun
San Francisco
73°
WED THU FRI SAT SUN MON
79° 89° 95° 83° 78° 56°
34° 45° 64° 37° 32° 32°
8,675,309
Apple Computer Inc.
main 1-800-MY-APPLE
work 1 Infinite Loop
Cupertino CA 95014
United States
Hayes
Hayes How You Doing (415) 863-5545
236 Fifth St
San Francisco, CA 94102
Hayes Street Grill (415) 345-9874
23 17th St
San Francisco, CA 92340
Hayes You Hayes Me (415) 345-9874
324 Hayes St
San Francisco, CA 94102
130-142 of 142
Fri MAY 27
reminders:
call dad
order mac os x tiger
Airline: Virgin
Flight No: VS21
Departure City: 7:02:23 AM
IAD - Washington DC
Arrival City: 11:03 PM
NRT - Tokyo
Gate: 12B
25 Minutes Late
457 MPH 17293 FEET
Convert Currency
US Dollars
Japanese Yen
$1.27 = 151.39¥
Last updated: 7/3/03 8:05 AM

Java

- NASA Maestro
- Yahoo! Games
- Moneydance 2005
- ReportMill
- Java Studio Creator
- JDeveloper

Type of Project
1. Scripts and Java projects
2.
3.
4.

Type of Project
1. Scripts and Java projects
2. Unix projects
3.
4.

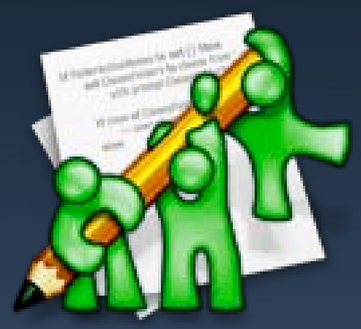
Unix Projects

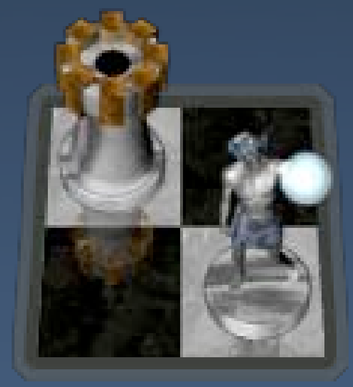
- X11
- GNU Chess
- BLAST
- TeX
- …

SourceForge.net lists more than 28,000

Type of Project
1. Scripts and Java projects
2. Unix projects
3.
4.

Type of Project
1. Scripts and Java projects
2. Unix projects
3. Cocoa apps
4.

COMIC
Life




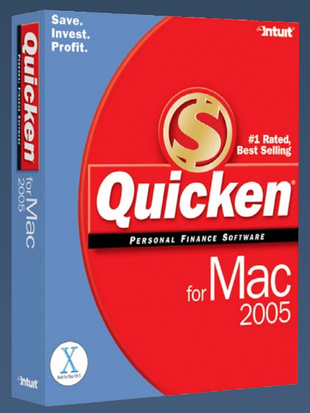
M
2

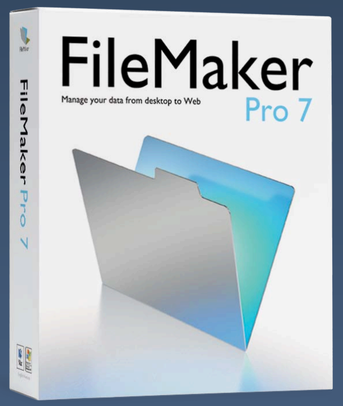
Type of Project
1. Scripts and Java projects
2. Unix projects
3. Cocoa apps
4.

Type of Project

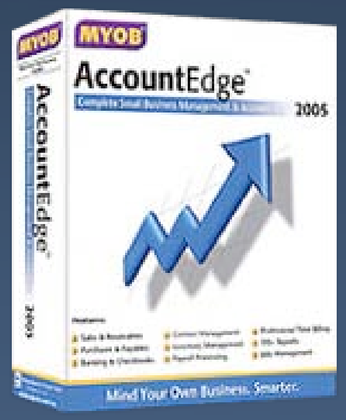
1. Scripts and Java projects
2. Unix projects
3. Cocoa apps
4. Carbon apps

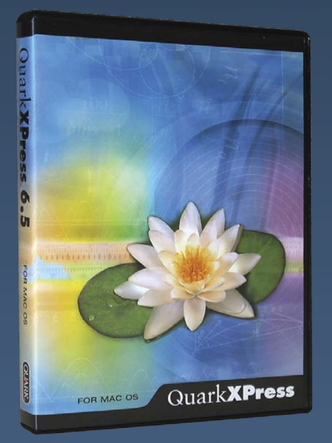
Microsoft
Office:mac
Office:mac
2004
STANDARD EDITION

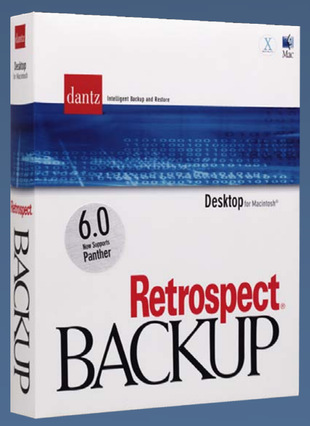

Save.
Invest.
Profit.
intuit
Quicken
#1 Rated,
Best Selling
Quicken
PERSONAL FINANCE SOFTWARE
for Mac
2005


FileMaker
Manage your data from desktop to Web
Pro 7

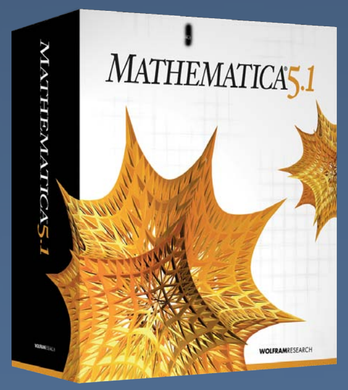
Adobe Creative Suite 2 Premium
Adobe

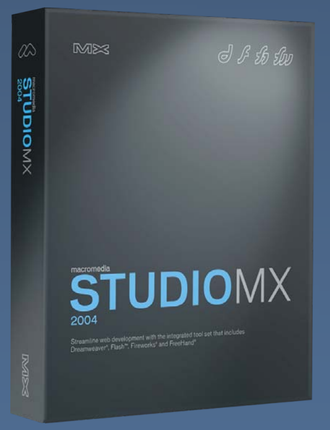

MYOB
AccountEdge
2005
Mind Your Own Business, Smarter.


QuarkXPress 6.5
FOR MAC OS
QuarkXPress


dantz
Desktop for Macintosh
6.0
Now Supports Panther
Retrospect
BACKUP

roxio
TOAST 6
TITANIUM


MATHEMATICA 5.1
WOLFRAM RESEARCH


MX
STUDIOMX
2004
macromedia
STUDIOMX
2004

Maya Unlimited
Maya 6
CAN YOU IMAGINE

Type of Project

1. Scripts and Java projects
2. Unix projects
3. Cocoa apps
4. Carbon apps

Type of Project	Effort / Task
1. Scripts and Java projects	
2. Unix projects	
3. Cocoa apps	
4. Carbon apps	

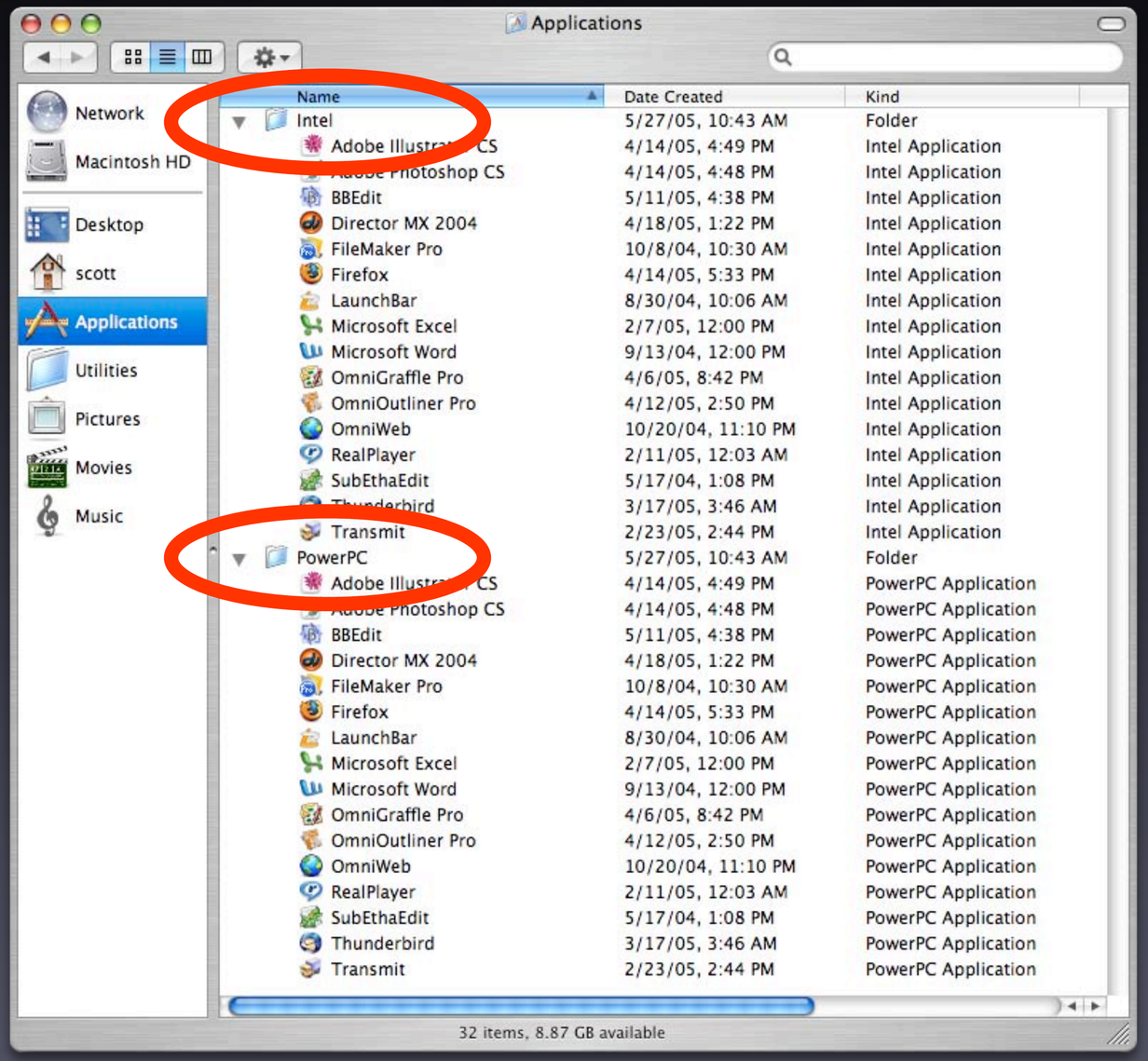
New Best Practice #11: Processor-Independent

BabyGap

#11: Processor-Independent

#11: Processor Independent

No IS Department Headaches



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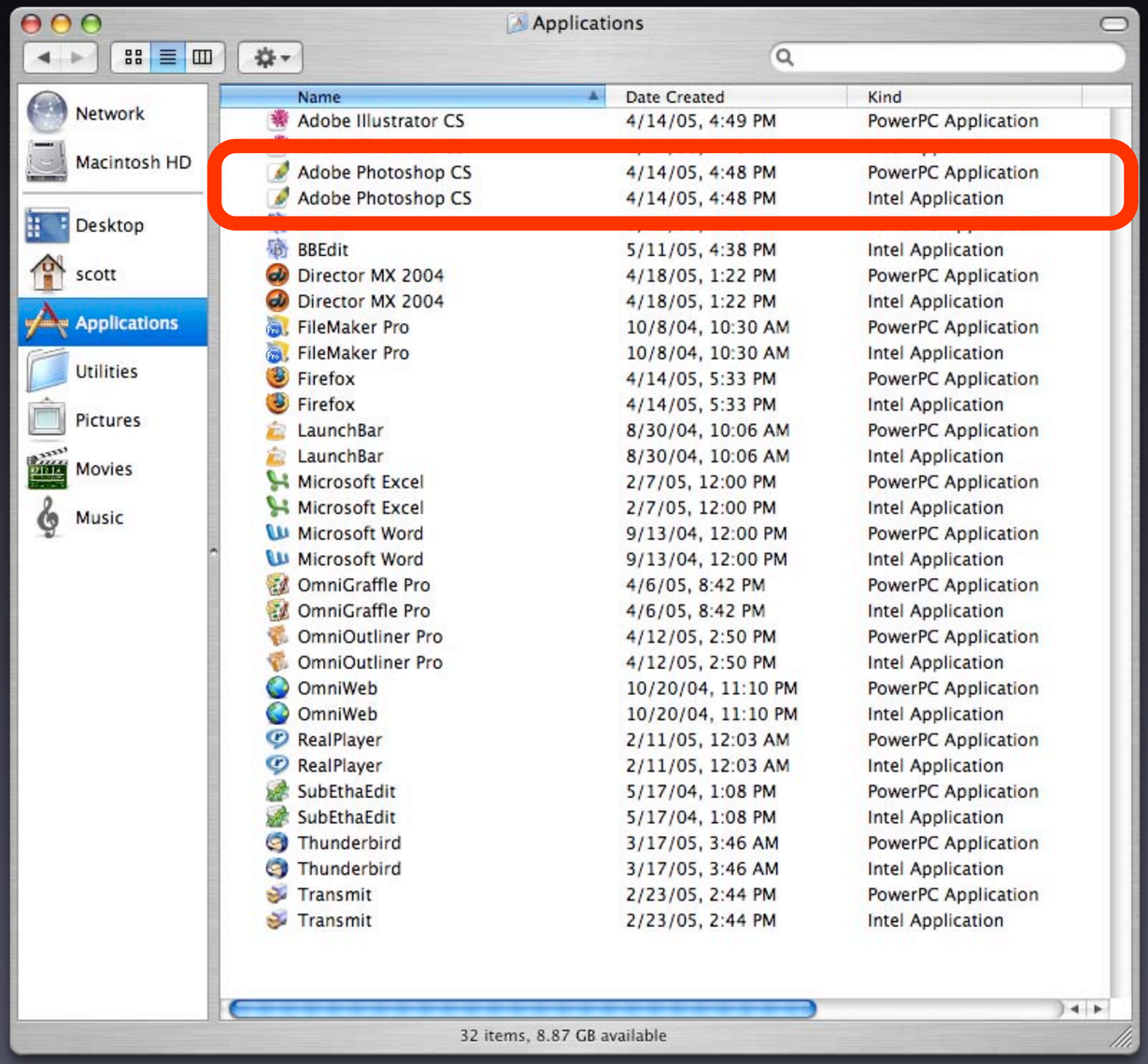

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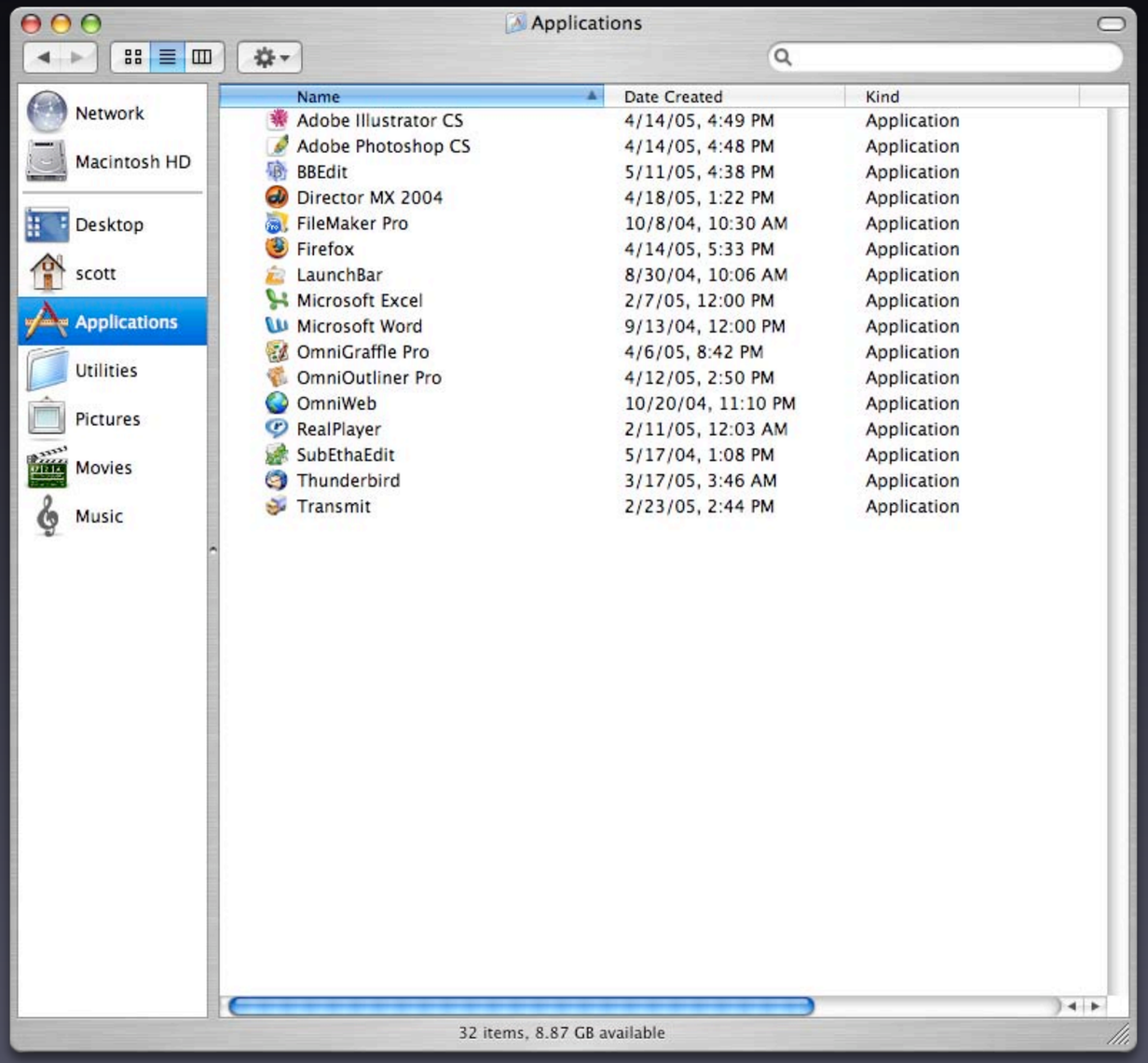
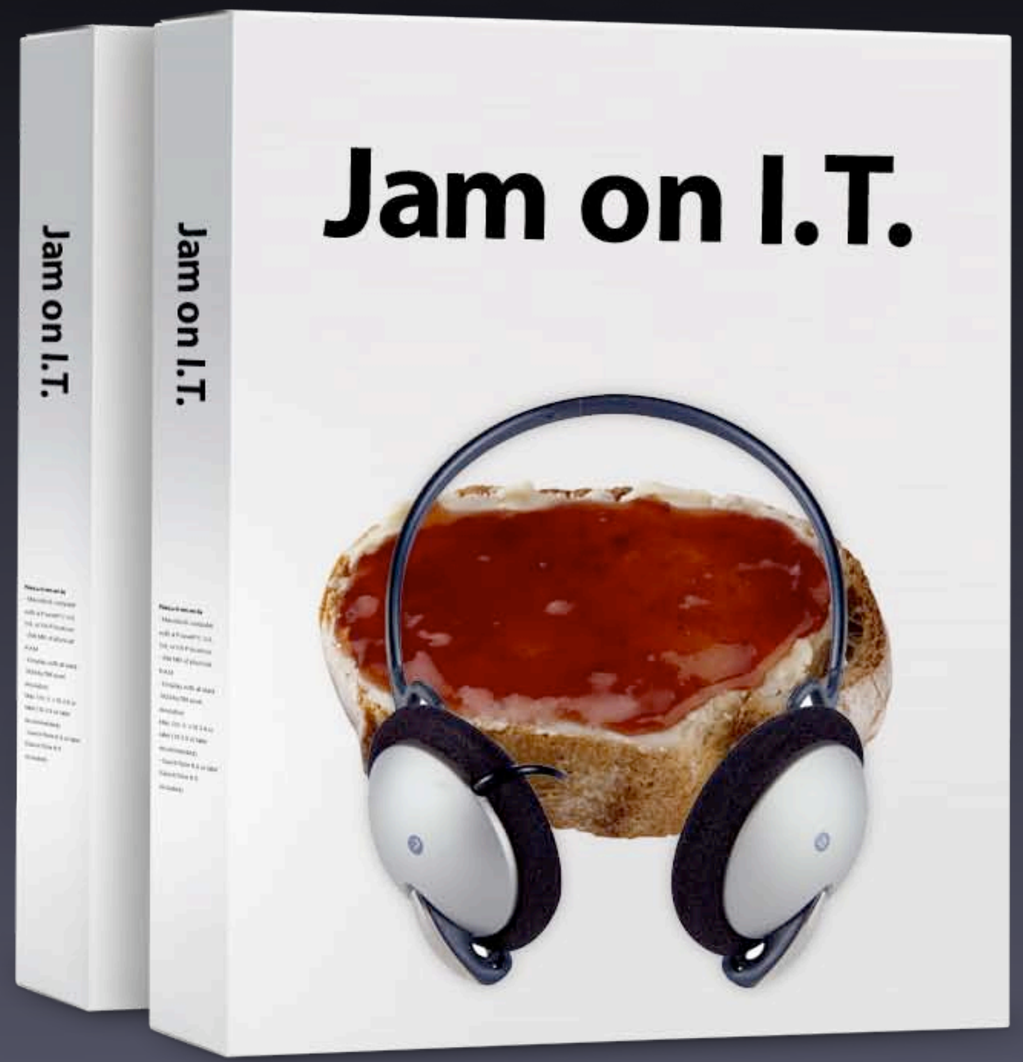


One SKU

No Fine Print



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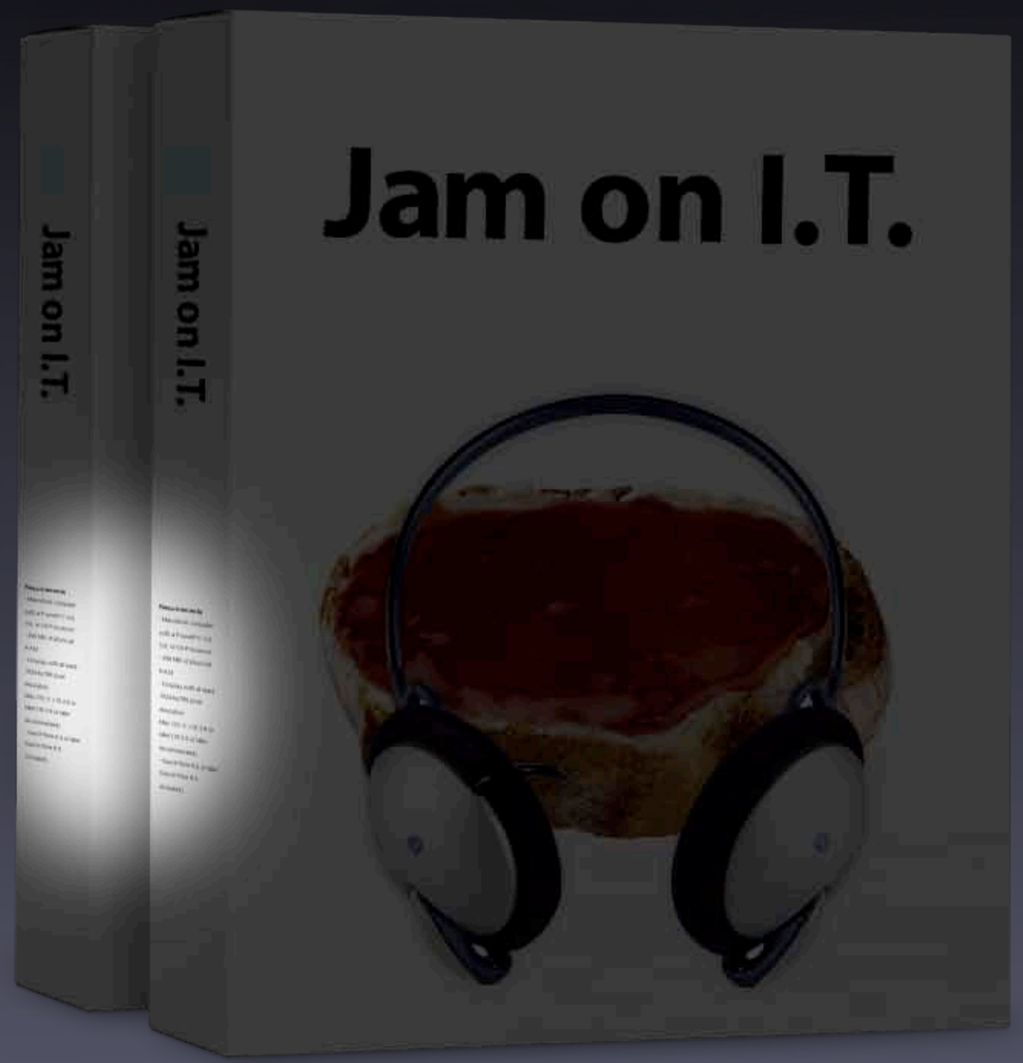

Requirements

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- 256 MB of physical RAM
- Display with at least 1024-by768 pixel resolution
Mac OS X v10.3 or later recommended)
- QuickTime 7 or later

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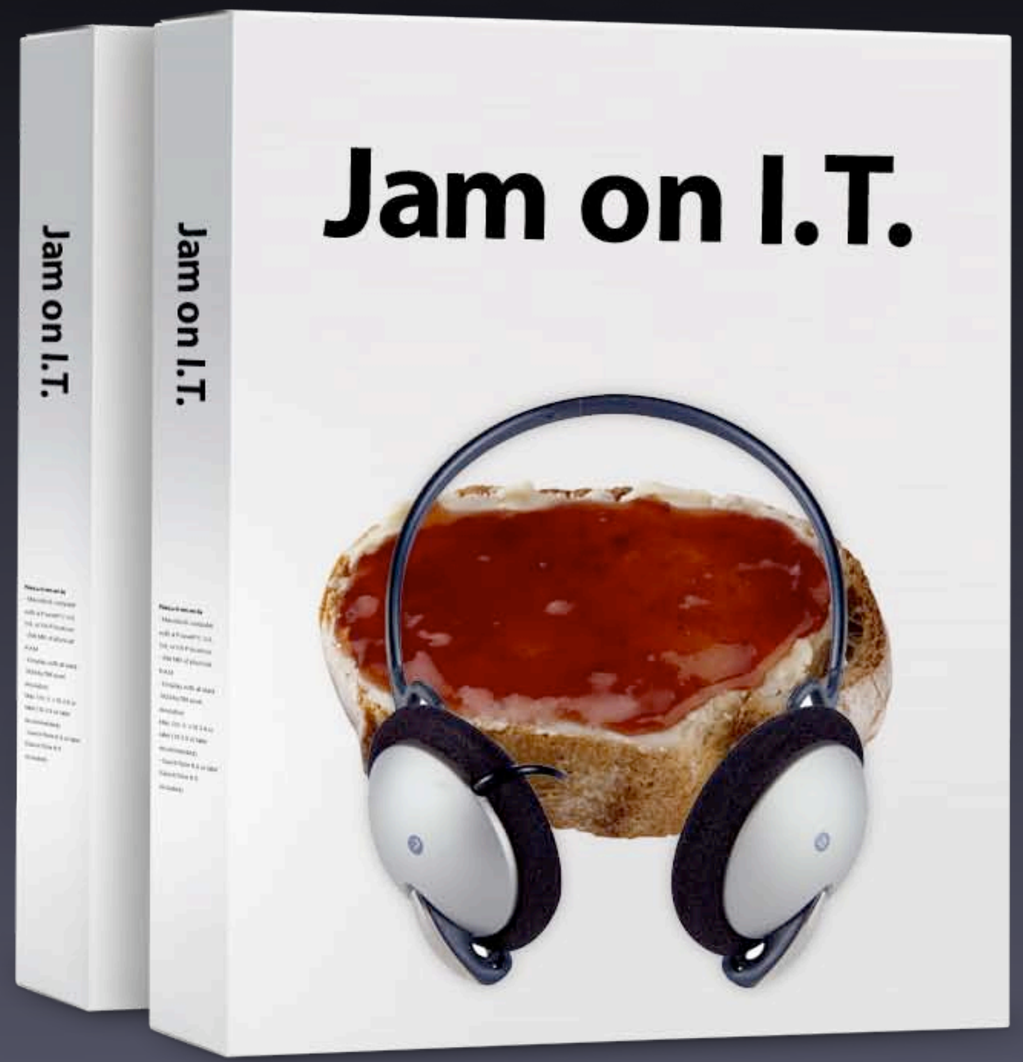

One SKU

No Fine Print

G5
intel

Finder File Edit View Go Window Help

Mon 1:15 PM

Spotlight National Park

Show all (203)

Top Hit — Confirmation of reservation

Contacts — Ahwahnee Hotel; Old Faithful Visitor Center

Images — Deer; Bison Sunset; Geyser

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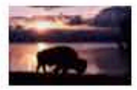
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Bryce Canyon
Yellowstone
Zion

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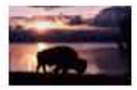
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Yellowstone Park map
Yosemite Valley Hiking trails
Old Faithful Lodge - Overvi...
Yosemite
Bryce Canyon
Spotlight Preferences...
Translate from English
French Fries
To French
Pommes Frites
NASDAQ 3450.05 + 4.50
NYSE 14535.44 + 3.98
AAPL 124.03 + 7.36
MSFT 18.23 - 1.34
PIXR 119.23 + 3.32
AMZN 5.23 + 0.12
Quotes delayed by 20 mins
Imagine
3:19
Dictionary Thesaurus
meek
meek |mēk|
adjective
quiet, gentle, and easily imposed on; submissive : I used to call her Miss Mouse because she was so meek and mild | the meek compliance of our politicians.
DERIVATIVES
meek•ly adverb
meek•ness noun
San Francisco
73°
WED THU FRI SAT SUN MON
79° 89° 95° 83° 78° 56°
34° 45° 64° 37° 32° 32°
8,675,309
Apple Computer Inc.
main 1-800-MY-APPLE
work 1 Infinite Loop
Cupertino CA 95014
United States
Hayes
Hayes How You Doing (415) 863-5545
236 Fifth St
San Francisco, CA 94102
Hayes Street Grill (415) 345-9874
23 17th St
San Francisco, CA 92340
Hayes You Hayes Me (415) 345-9874
324 Hayes St
San Francisco, CA 94102
130-142 of 142
Fri MAY 27
reminders:
call dad
order mac os x tiger
Airline: Virgin
Flight No: VS21
Departure City: 7:02:23 AM
IAD - Washington DC
Arrival City: 11:03 PM
NRT - Tokyo
Gate: 12B
25 Minutes Late
457 MPH 17293 FEET
Convert Currency
US Dollars
Japanese Yen
$1.27 = 151.39¥
Last updated: 7/3/03 8:05 AM

Finder File Edit View Go Window Help
Mon 1:45 PM
Spotlight National Park
Show all (203)
Confirmation of reservation
Ahwahnee Hotel
Old Faithful Visitor Center
Deer
Bryce Canyon Trip June 2004
Confirmation of reservation
Can I come?
Re: Where should we stay?
Where should we stay?
Ahwahnee Hotel - Overview
Bryce Canyon map
Yellowstone Park map
Yosemite Valley Hiking trails
Old Faithful Lodge - Overvi...
Yosemite
Bryce Canyon
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Last updated: 7/3/03 8:05 AM

#11: Universal

Top 10
Best Practices

5 Best Practices for User Features

5 Best Practices for Implementation

Best Practices for User Features

#10: The Ultimate Driving Experience

Build the Best Mac Application

- Start with great idea and target customer
- Design for Aqua and Mac OS X

X-Chat [2.0.0]: lagnat @ SanJose.CA.us.undernet.org / #Chatzone (+tnl 287)

SanJose.CA.us.unde.. | #macosx | #Chatzone | liberty.nj.us.dal... | ChanList

<aShLeY88> T N S I P M B L 287 K >

```
        -->  RetNavy2 (na@0-1pool154-223.nas1.melbourne2.fl.us.da.qwest.net) has joined
             #Chatzone
        -->  lisa22 (tintin@hlfx37-158.ns.sympatico.ca) has joined #Chatzone
        <--  marie__ (marie_ph@203.168.17.62) has left #Chatzone
        <--  CoolGuy36 (jmpnet@202.155.55.16) has left #Chatzone
    <Blah^>  Pogo: what will u do for me if I do it
        <--  eiyelle (miyaka@dialup3.nulaoag.com) has left #Chatzone
<PogoStick>  videotape
        <--  mark_male has quit (Ping timeout)
    <Blah^>  I need more
         *   _Mikey_                          on the way out
        -->  lutfen (bbbb@81.212.192.142) has joined #Chatzone
        <--  bday|girL (-zhamarei@202.138.184.81) has left #Chatzone
        -->  rainydays (2@81.212.143.189) has joined #Chatzone
        -->  BAHADIR__ (-KELEBEK@62.29.112.104) has joined #Chatzone
        <--  SWEETUK has quit (Ping timeout)
        -->  jules^^ (jules__@c68.114.252.138.fdl.wi.charter.com) has joined #Chatzone
        ---  Y-wing removes ban on *!*pc12@203.160.175.*
        -->  kyochi (asda@203.87.130.149) has joined #Chatzone
        <--  timelord2 (Arthur@242.brs0212.brs.iprimus.net.au) has left #Chatzone
        <--  MARC_PAUL (-recca_ann@202.138.185.42) has left #Chatzone
  <SIG-P220>  jennifer!!!!!!!
  <SIG-P220>  bye!!!!!
  <SIG-P220>
<PogoStick>  I'll give you 14 cents
  <SIG-P220>  did I miss it?
        <--  k3yD has quit (Quit)
<PogoStick>  US
        <--  Sherazi has quit (Quit: Leaving)
        <--  Aussie28m (Aussie28m@gipp-p-144-139-166-232.prem.tmns.net.au) has left
             #Chatzone
        -->  ICE-LADY (Ice_lady@ppp130.buc.idilis.net) has joined #Chatzone
   <Skiah`>  AWw
        -->  Slaty` (i@mstr195175-28920.dial-in.ttnet.net.tr) has joined #Chatzone
  <SIG-P220>  crap
```

6 ops, 270 total

- DiCeR
- Space`0ut
- Trazom
- X
- Xpo
- Y-wing
- jenafk
- Kronovohr
- _Mikey_
- `Dark_BOX
- `iLLuSion
- `Julie
- a_male_43
- A_s_i_a
- Adnan^
- adoo
- adriana2
- agukoy
- aGuy49
- Ah41m
- AL_AMRY
- ALESZA

Clear | Dialog
Ban | Kick
Op | DeOp

lagnat

Instant Message with Joslyn
12:35PM
So have you received our proposal?
Got it
How are we looking?
Not bad
I Think we can do it for a lot less than our competitors
Yep, it looks pretty aggressive

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- Keep it simple

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6 ops, 270 total

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lagnat

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- Start with great idea and target customer
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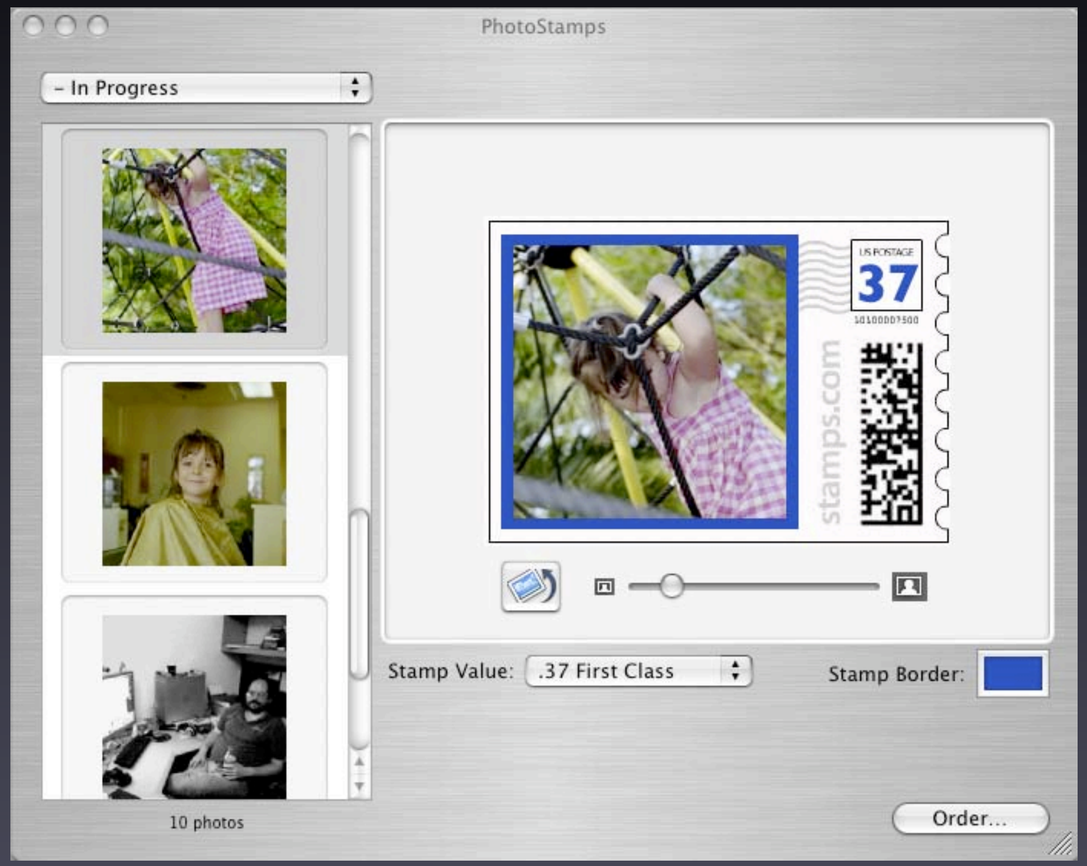
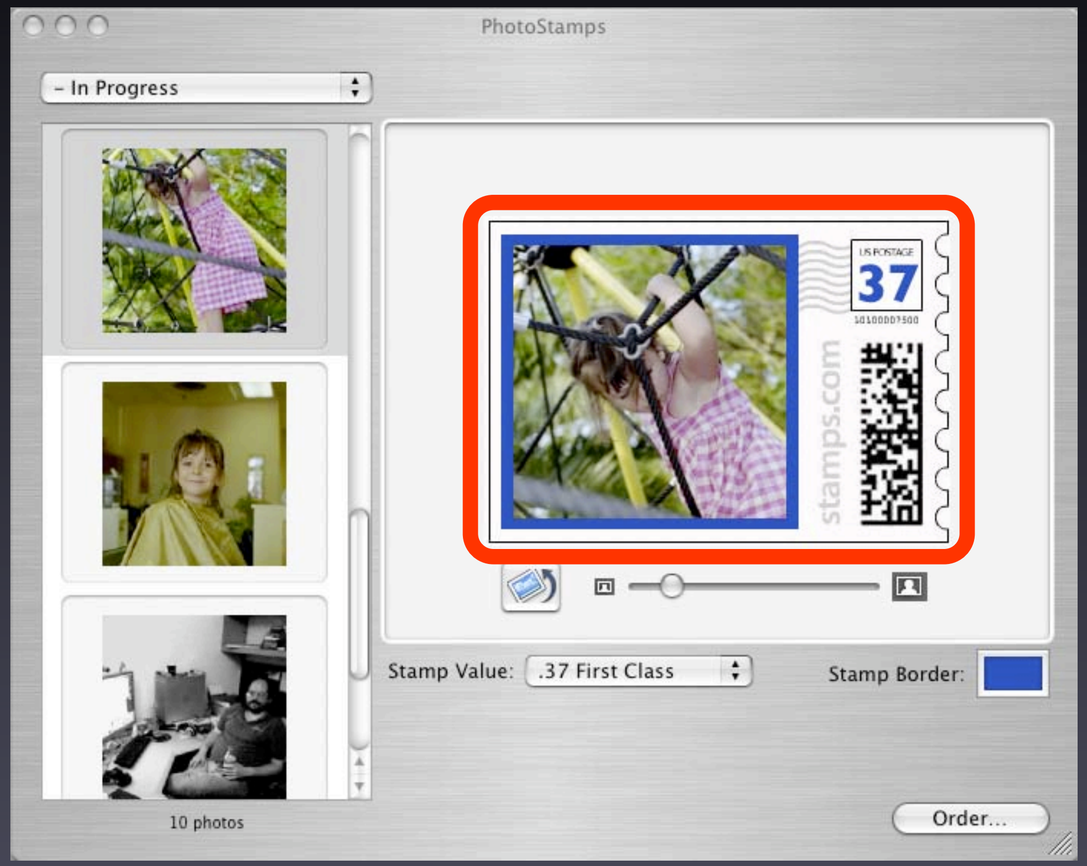
- Iterate on an elegant layout

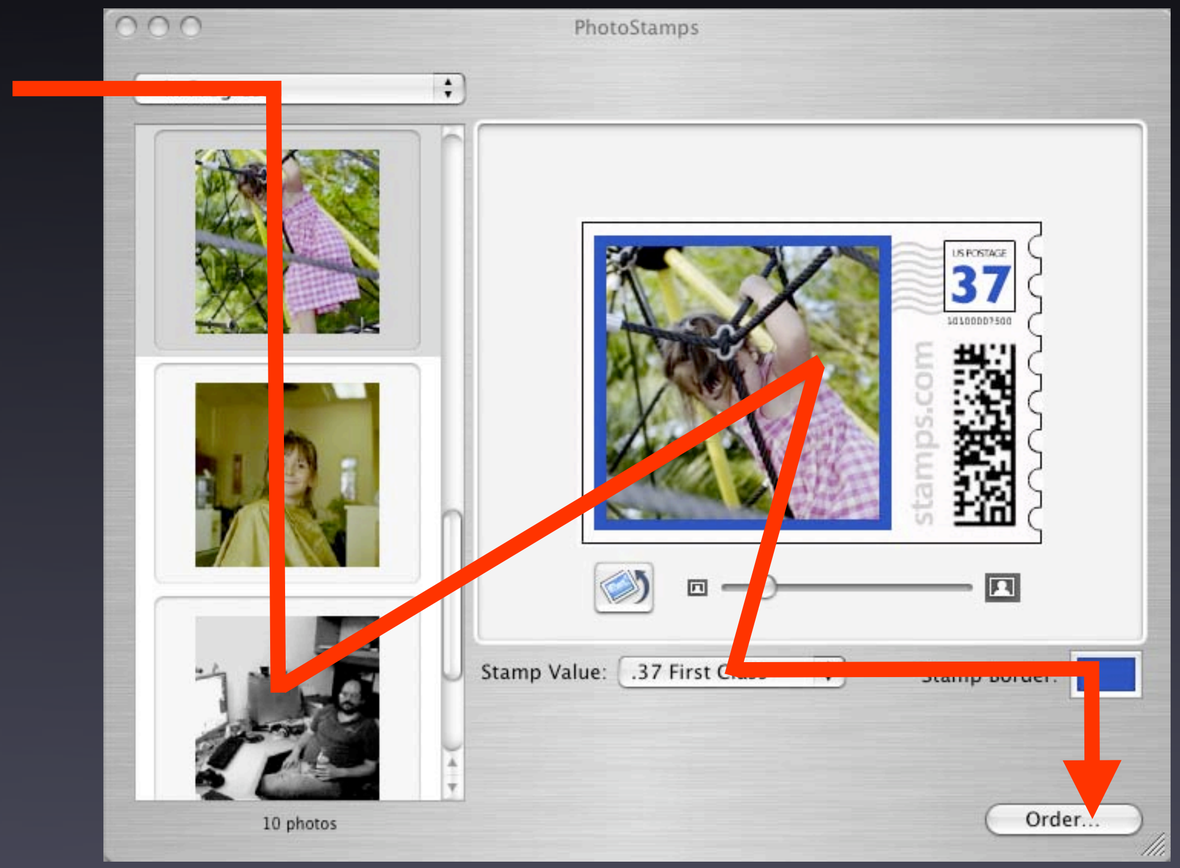
PhotoStamps from Stamps.com



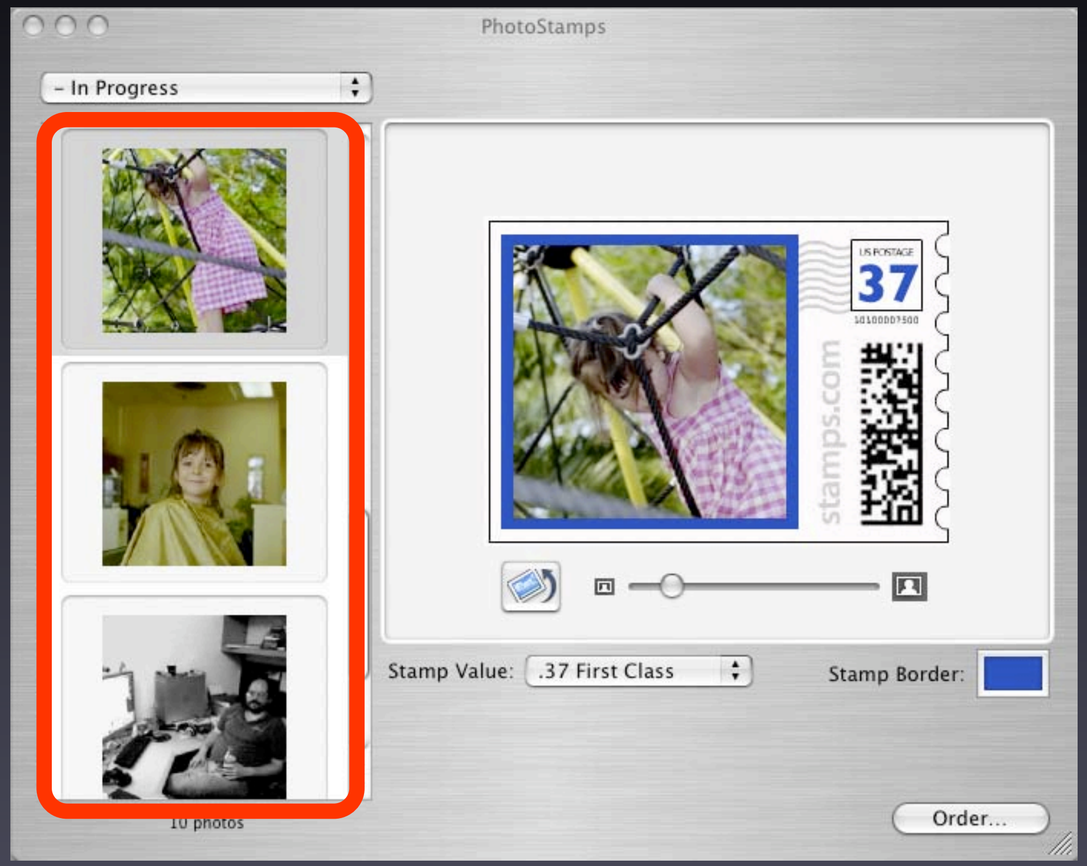
What's the Star?



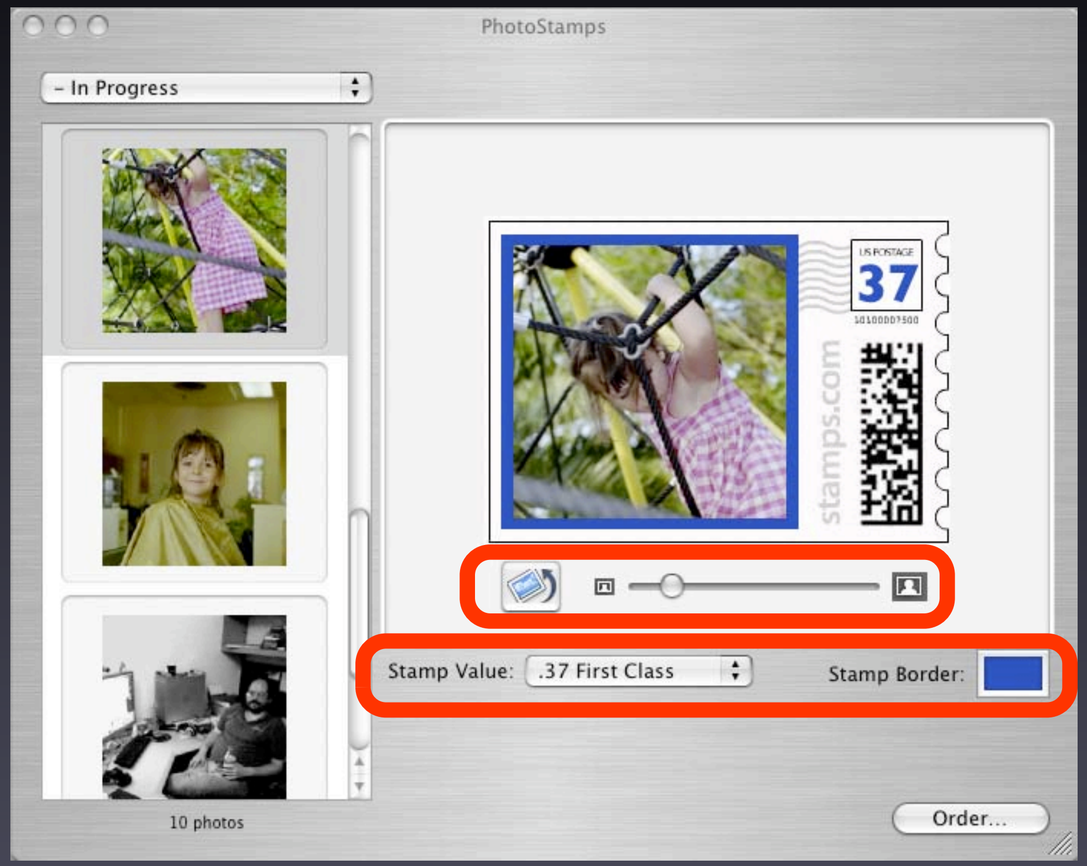
Information Flow



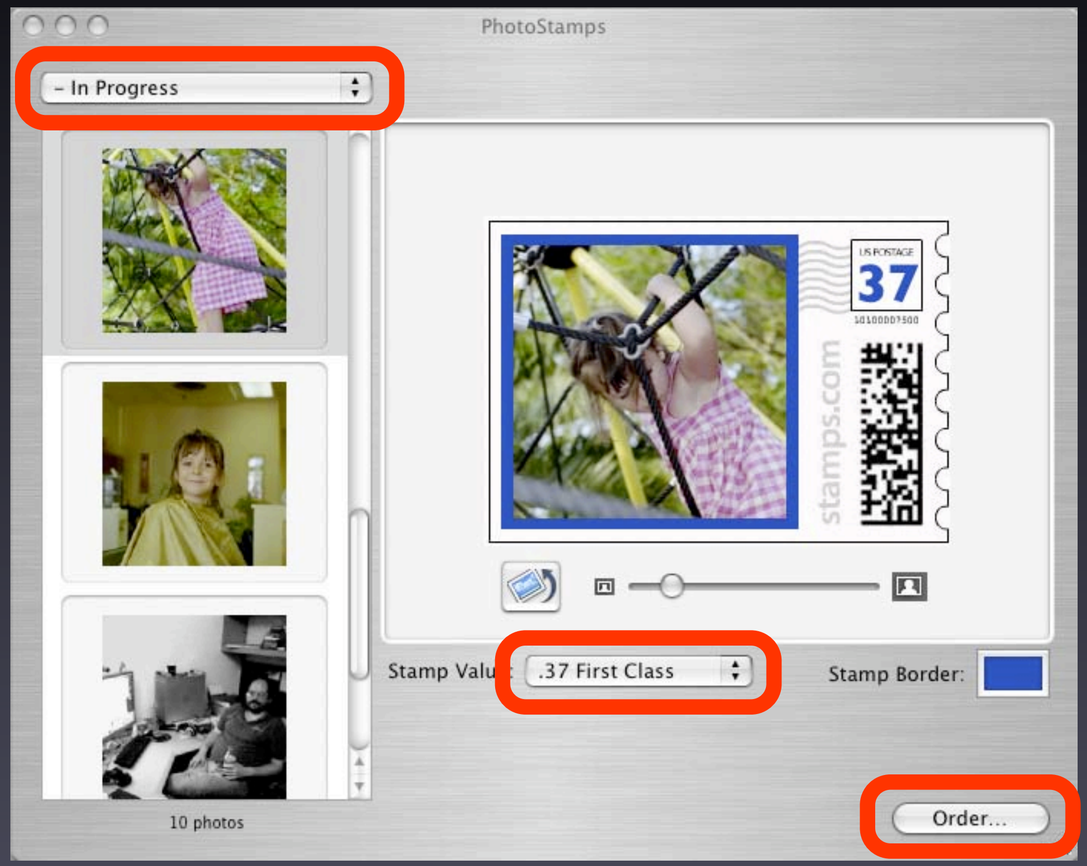
Not Enough Information



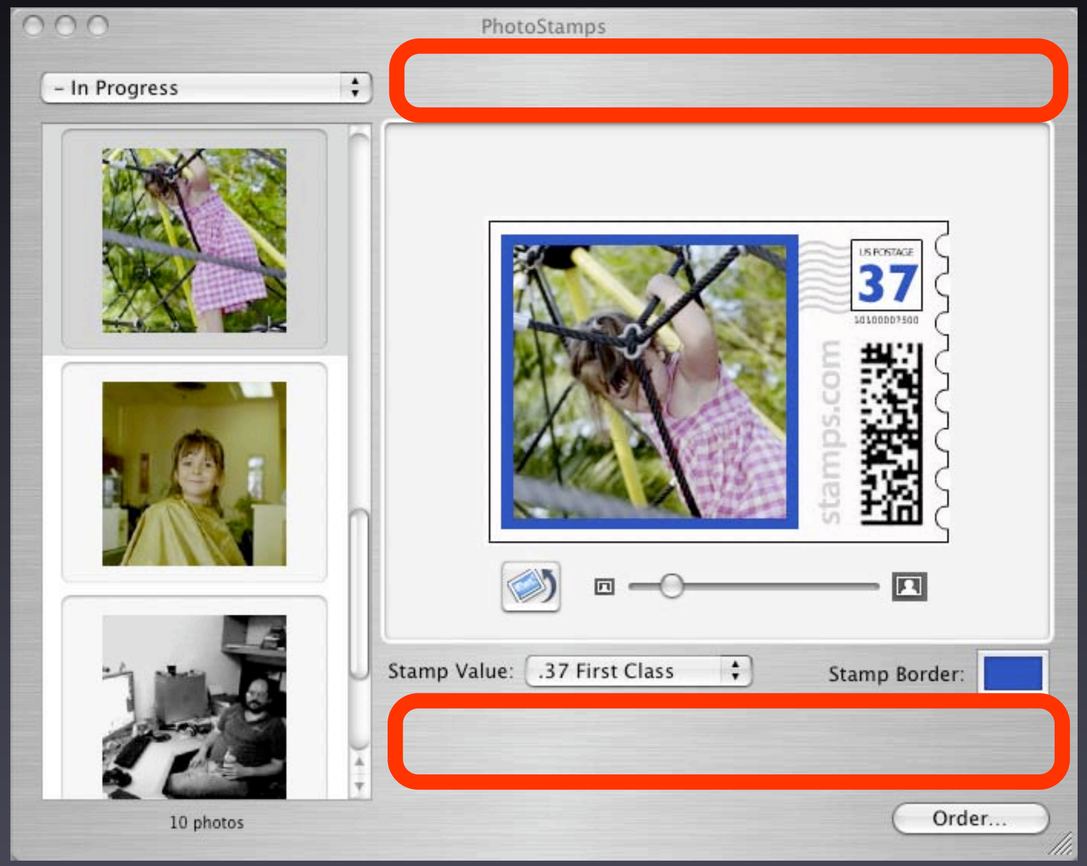
Control Clutter



Choose Your Controls Wisely



Metalhead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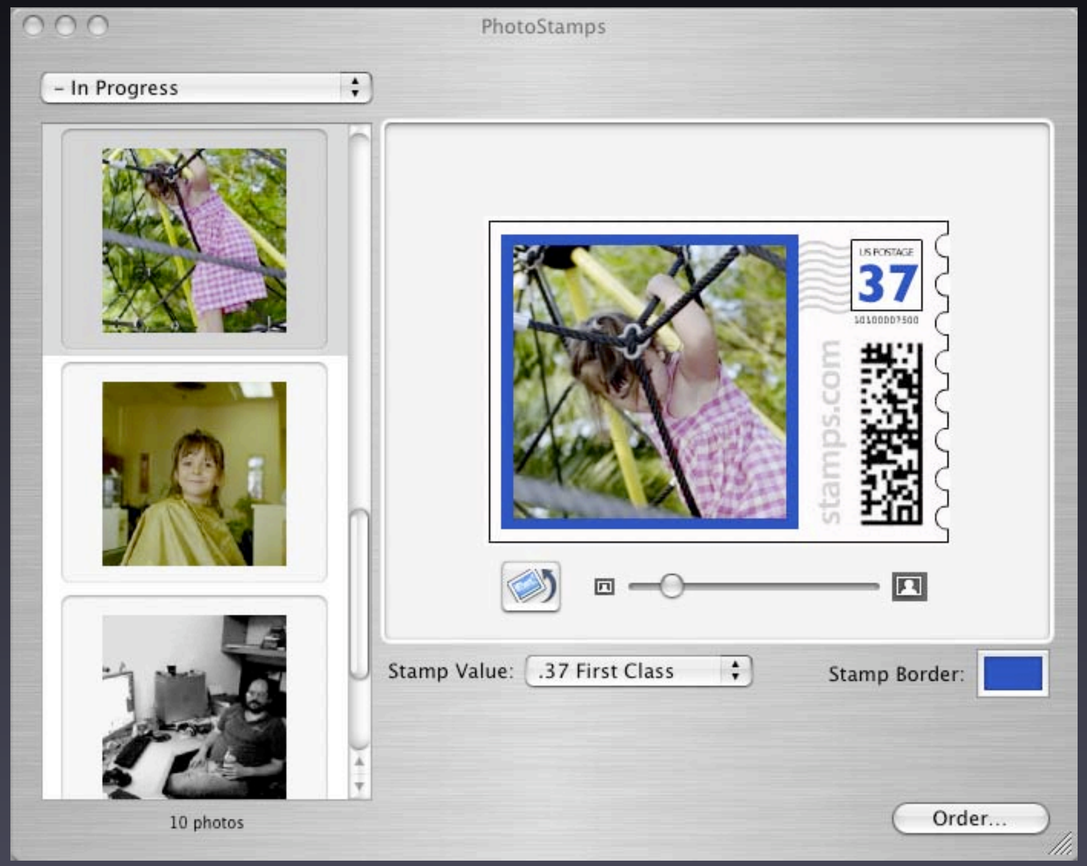
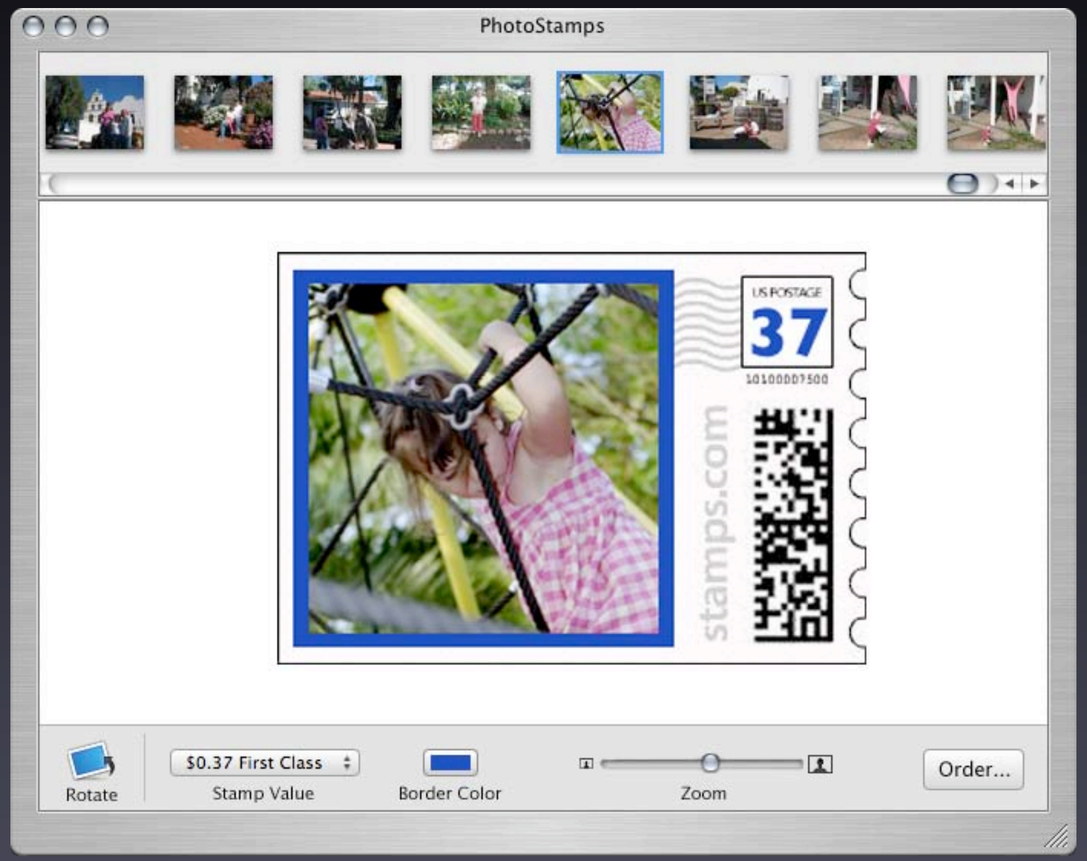
– In Progress
US POSTAGE
37
stamps.com
Stamp Value:
.37 First Class
Stamp Border:
10 photos
Order...

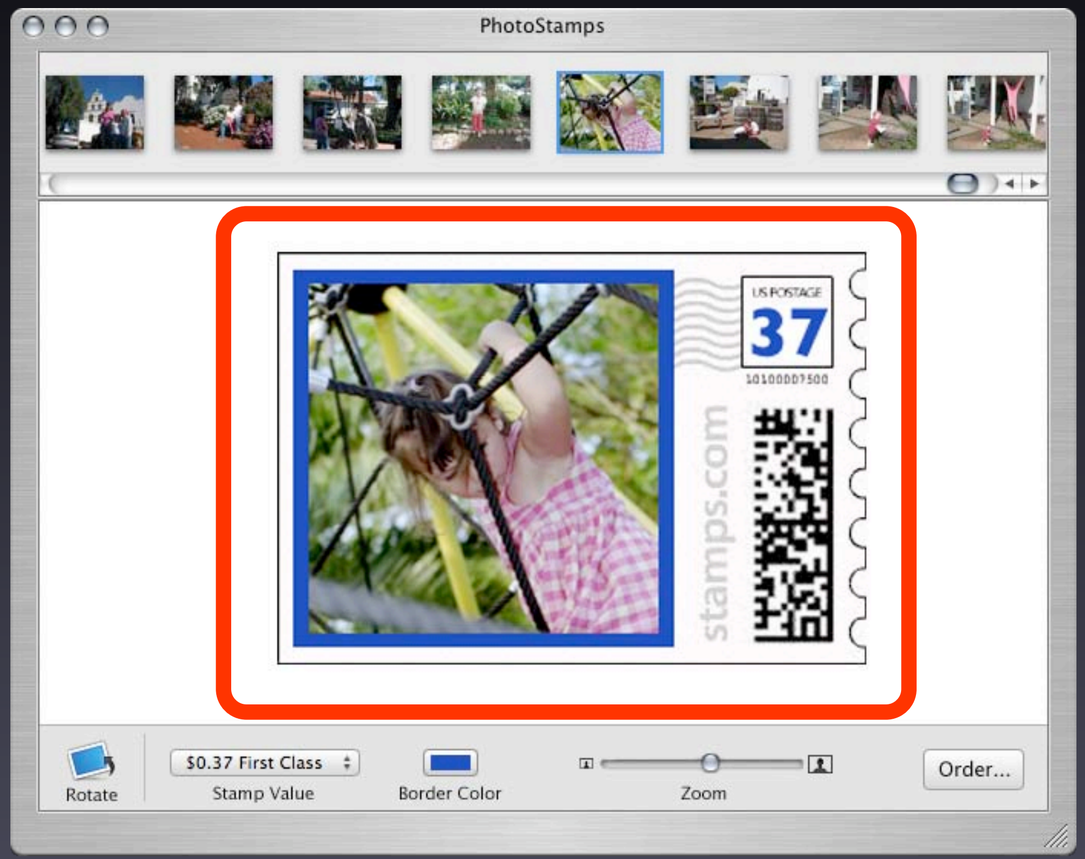
PhotoStamps from Stamps.com



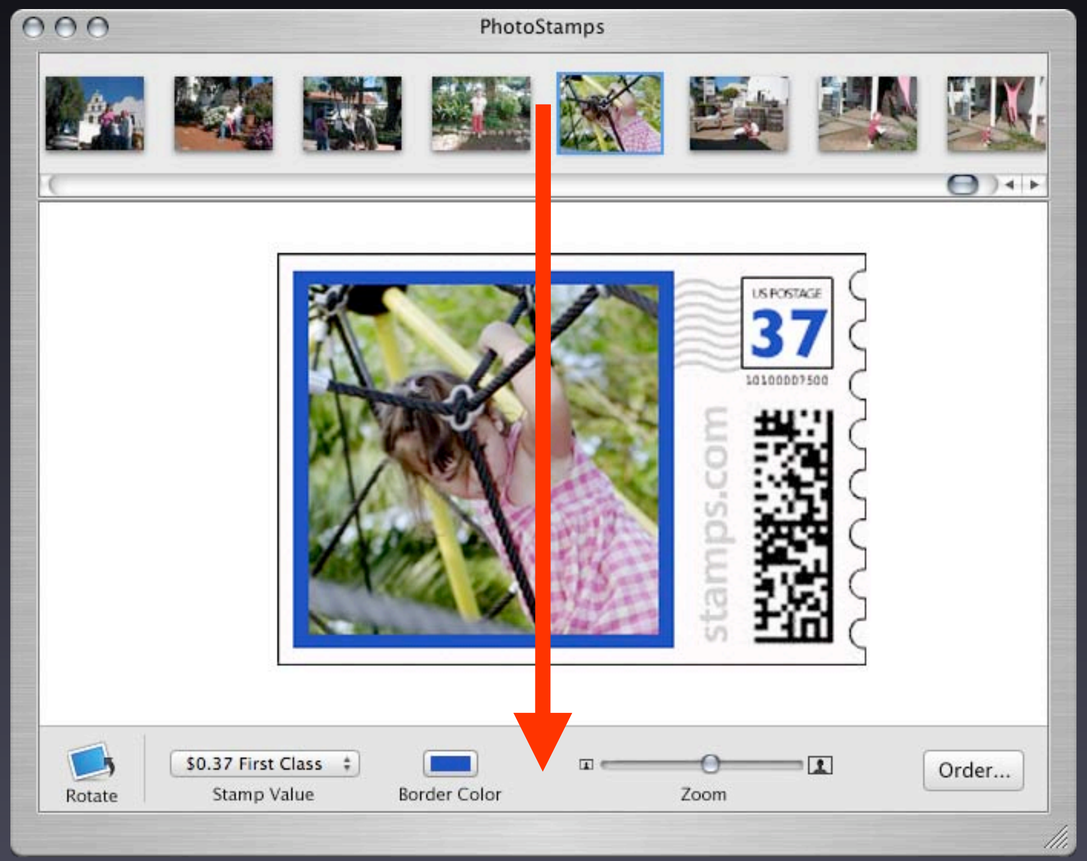
PhotoStamps from Stamps.com



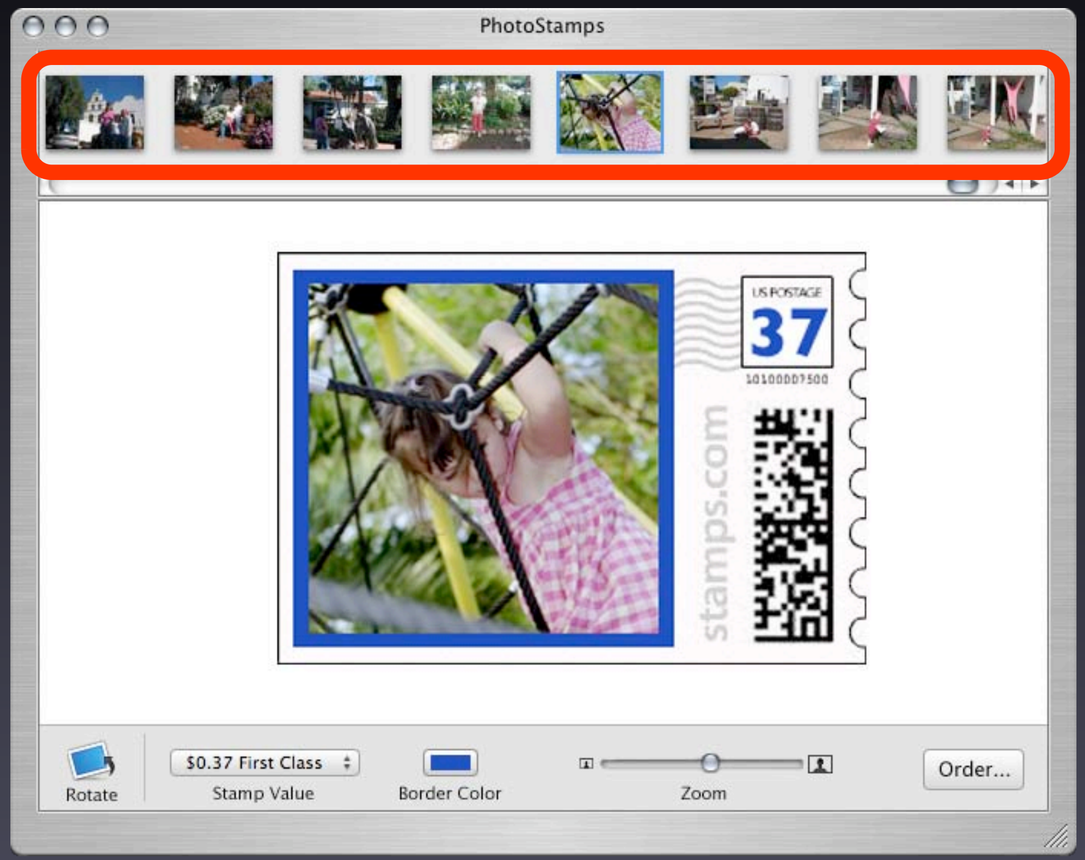
A Star Is Born



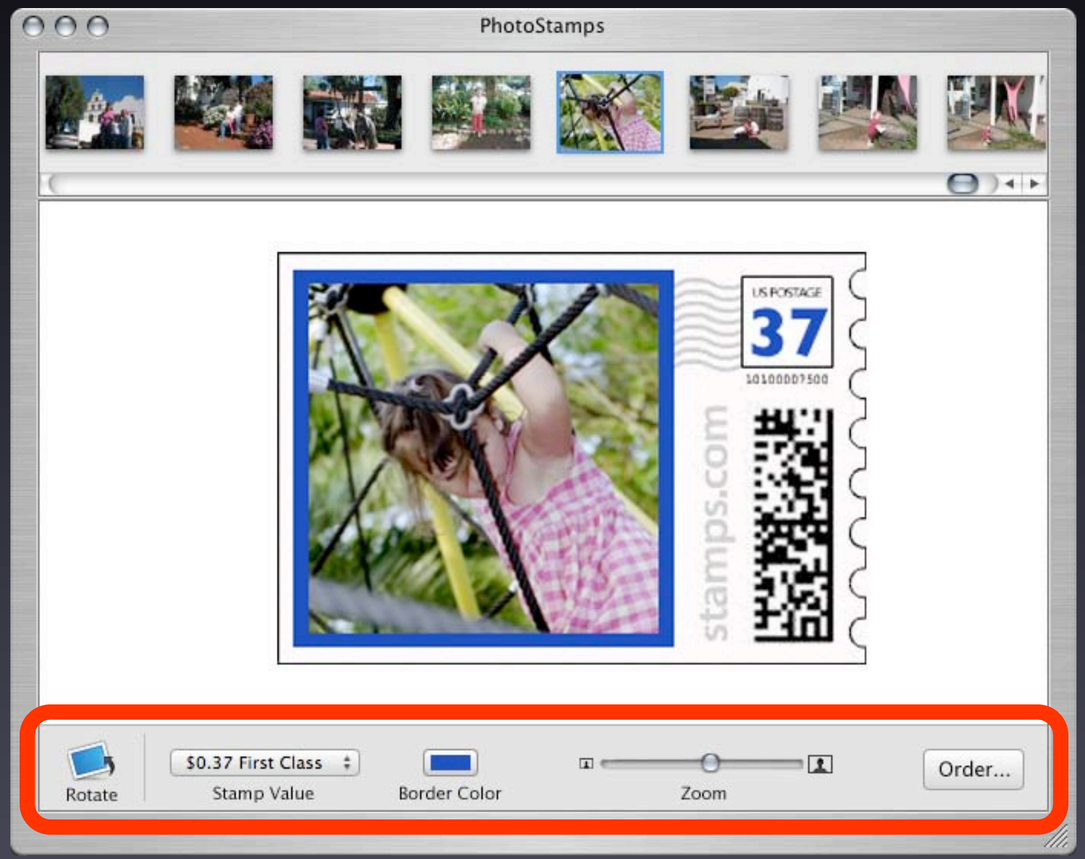
Information Flow



More Information



No Clutter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US POSTAGE
37
stamps.com
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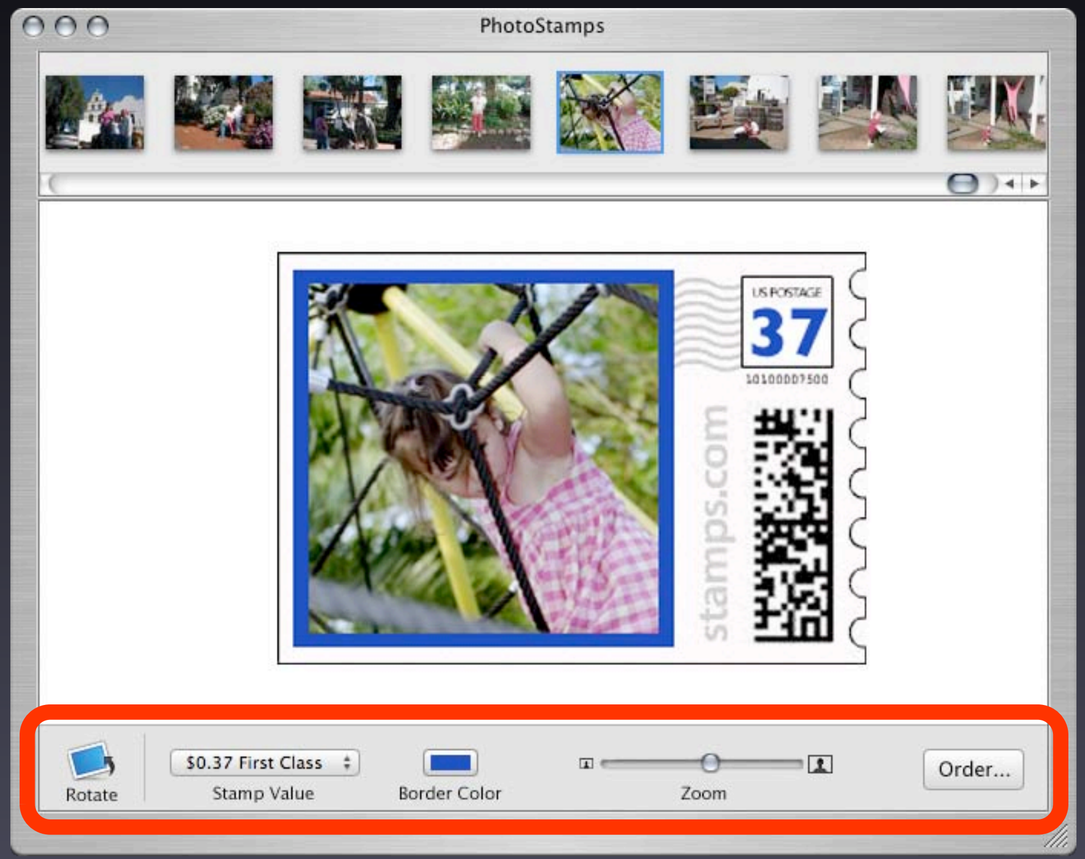
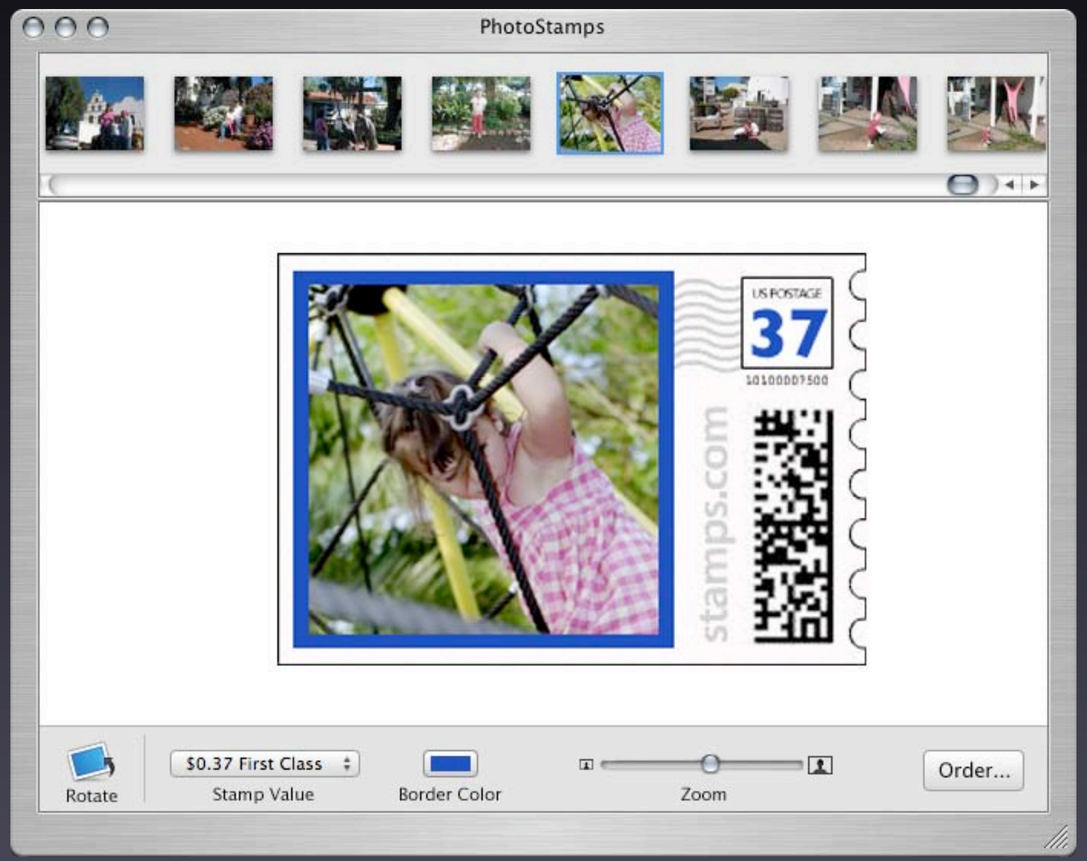
$0.37 First Class
Stamp Value
Border Color
Zoom
Order...

Choose Your Controls Wisely



Later, Metalhead



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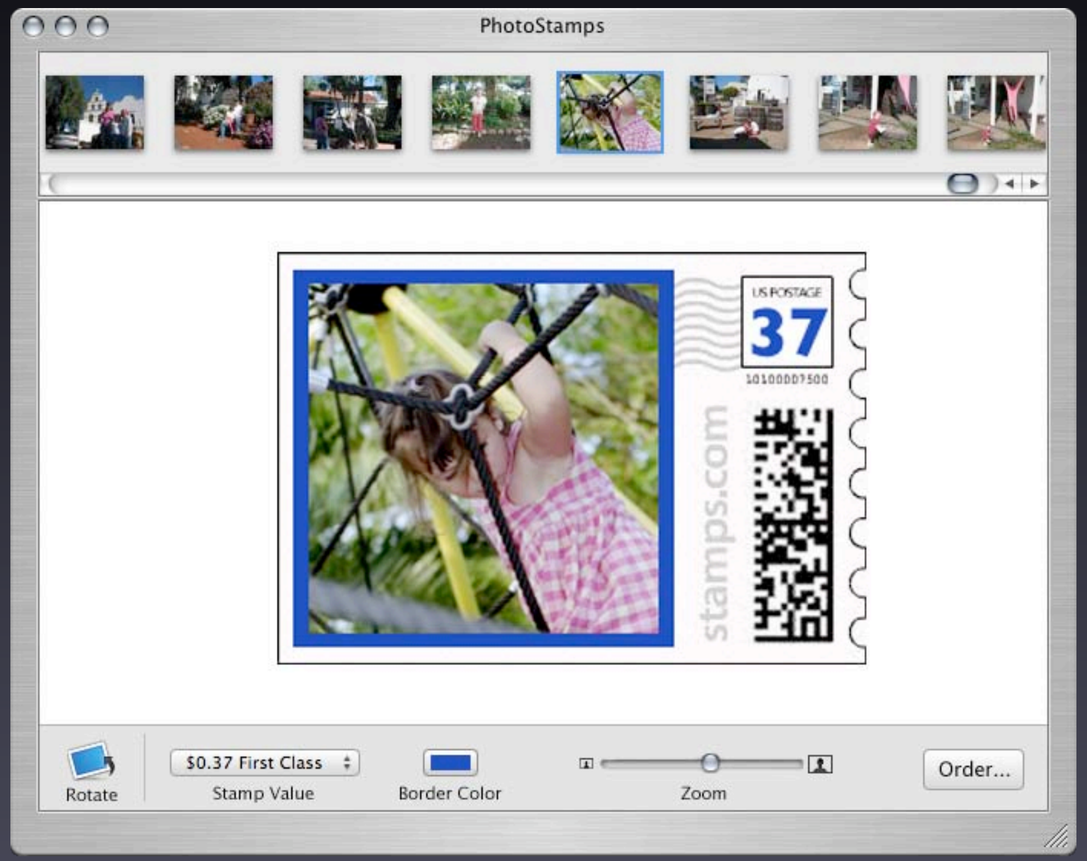

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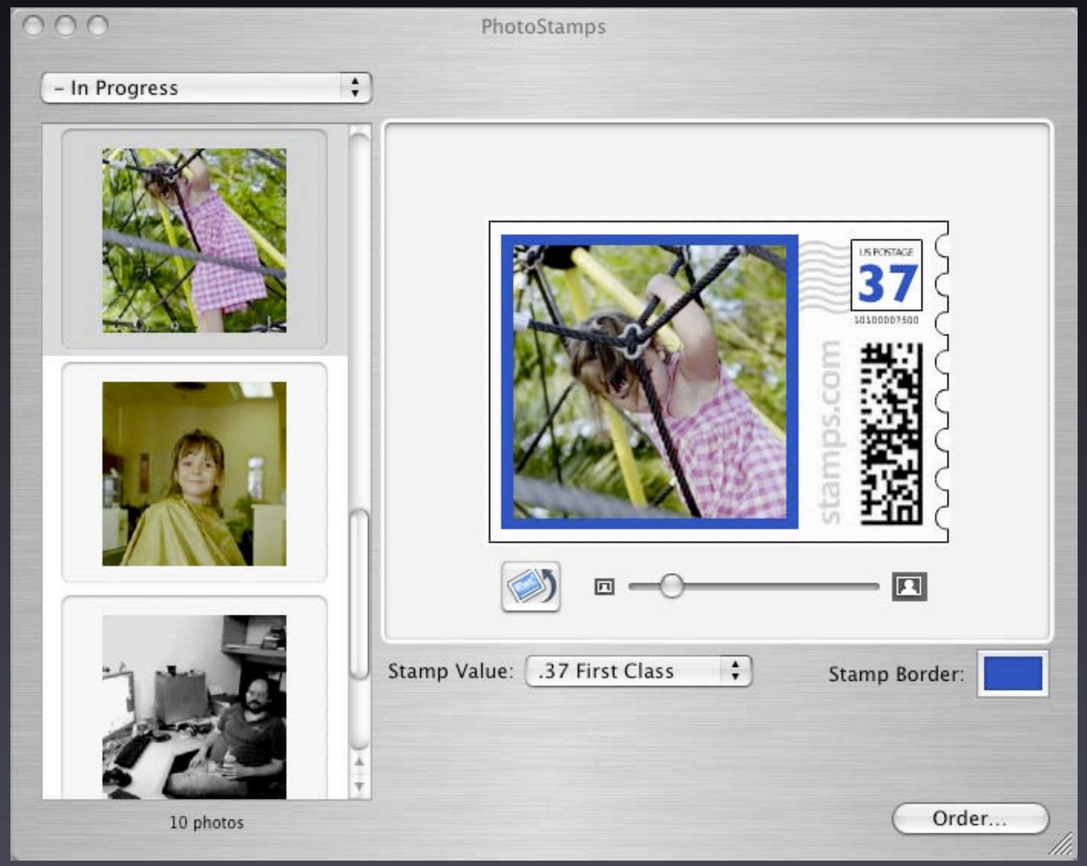

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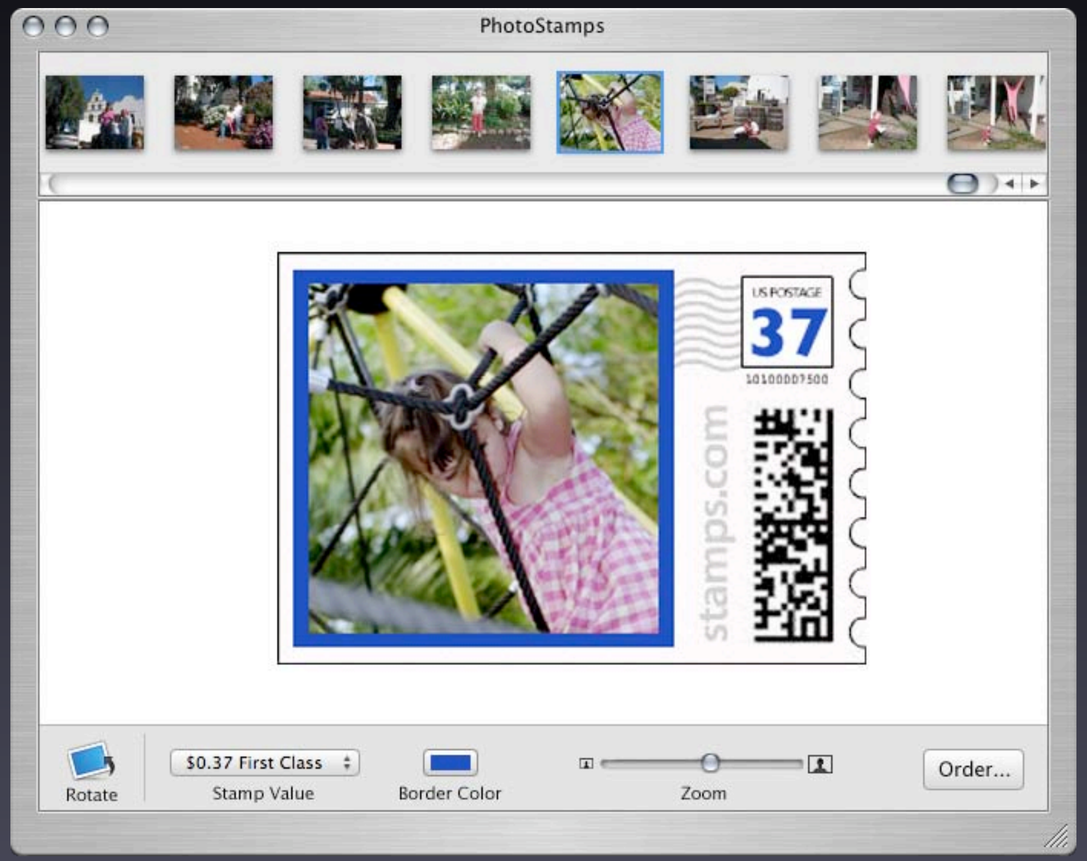

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- Keep it simple
- Iterate on an elegant layout
- Adopt killer technologies in Mac OS X

Was #39 Unrated 3 0 Chess GuestGHNF vs. GuestSGWD

GuestSGWD

03.00

Unrated 3 0 blitz

Move No.	White	Black

Draw Resign

Abort Adjourn

Takeback Takeback 2

03.00

GuestGHNF

Chess : "Untitled Game" : Solo Game : Move 10

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Build the Best Mac Application

- Start with great idea and target customer
- Design for Aqua and Mac OS X
- Keep it simple
- Iterate on an elegant layout
- Adopt killer technologies in Mac OS X
- Deliver high production value

Media Catalog

Library

	A	B	D	E	F	G	H	I	J
1	asin	title	genre	price	netrating	publisher	published	author	pages
2	452284392	Linked: How Everything Is Connected to Everything Else and What It Means	Organizational Be	$15.00	4	Plume	29-04-2003	Albert-Laszlo Barabasi	304
3	385504209	The Da Vinci Code	Mystery	$24.95	3.5	Doubleday	18-03-2003	Dan Brown	454
4	767908171	A Short History of Nearly Everything	Questions & Answ	$27.50	4.5	Broadway	6/5/03	Bill Bryson	560
5	60987049	Microserfs	Contemporary	$14.00	4.5	Regan Books	19-06-1996	Douglas Coupland	384
6	471288721	Symbol Sourcebook: An Authoritative Guide to International Graphic Symbols	Reference/ Quest	$44.95	4.5	Wiley	1/5/84	Henry Dreyfuss	288
7	452285216	Lies and the Lying Liars Who Tell Them: A Fair and Balanced Look at the Right	Political	$14.00	4	Plume Books	27-07-2004	Al Franken	421
8	375400117	Memoirs of a Geisha	Literary	$28.95	4.5	Knopf	23-09-1997	ARTHUR GOLDEN	448
9	399152288	R is for Ricochet	Contemporary/ Se	$26.95	3.5	Putnam Publishing	13-07-2004	Sue Grafton	350
10	61097314	The Bean Trees	Contemporary/ Li	$7.99	4	HarperTorch	1/10/98	Barbara Kingsolver	336
11	60512822	The Poisonwood Bible	Classics/ Contem	$7.99	4	HarperTorch	1/2/03	Barbara Kingsolver	672
12	735713693	TechTV Leo Laporte's 2004 Technology Almanac	Computer Archite	$24.99	3.5	TechTV	9/3/03	Leo Laporte/ Megan Morrone	552
13	60531045	One Hundred Years of Solitude	Classics/ Literary/	$24.95	4.5	HarperCollins	1/7/03	Gabriel Garcia Marquez	432
14	156027321	Life of Pi	Literary/ Popular	$14.00	4	Harvest Books	1/5/03	Yann Martel	336
15	786885688	Shopgirl	Contemporary	$11.95	4	Theia	5/9/01	Steve Martin	130
16	679744398	All the Pretty Horses	Movie Tie-Ins/ Co	$14.95	4	Vintage	29-06-1993	CORMAC MCCARTHY	320
17	807083178	Thousand Pieces of Gold: A Biographical Novel (Asian Voices)	Contemporary/ H	$14.00	3.5	Beacon Press	1/4/91	Ruthanne Lum McCunn	308
18	451524934	1984	Classics/ Paperba	$7.95	4.5	Signet Book	1/5/90	George Orwell	336
19	451526341	Animal Farm	Classics/ Paperba	$7.95	4.5	Signet Book	1/4/96	George Orwell	144
20	596006152	Mac OS X: The Missing Manual, Panther Edition	MacOS/ Macintosh	$29.95	4.5	New technologies.		David Pogue	728
21	439064872	Harry Potter and the Chamber of Secrets	Humorous/ Scien	$6.99	5	Scholastic Paperbacks	1/9/00	J. K. Rowling	352
22	439139600	Harry Potter and the Goblet of Fire	Science Fiction, Fa	$8.99	5	Scholastic Paperbacks	1/9/02	J. K. Rowling	752
23	439136369	Harry Potter and the Prisoner of Azkaban	Science Fiction, Fa	$7.99	5	Scholastic Paperbacks	1/10/01	J. K. Rowling	448
24	059035342X	Harry Potter and the Sorcerer's Stone	Humorous/ Scien	$6.99	5	Scholastic Paperbacks	1/10/99	J. K. Rowling	320
25	316168815	The Lovely Bones	Literary	$13.95	4	Back Bay Books	20-04-2004	Alice Sebold	352
26	316143464	Dress Your Family in Corduroy and Denim	Essays/ Classics	$24.95	4	Little, Brown	1/6/04	David Sedaris	272
27	60254920	Where the Wild Things Are	Bedtime & Dream	$16.95	5	HarperCollins	9/11/88	Maurice Sendak	48
28	60256656	The Giving Tree	Fiction/ Picture Bo	$15.99	4	HarperCollins Publishers	1/6/64	Shel Silverstein	64
29	067084487X	The Stinky Cheese Man and Other Fairly Stupid Tales	Humorous/ Antho	$16.99	4.5	Viking Books	1/7/93	Lane Smith/ Jon Scieszka	56
30	789499754	America 24//7	Photo Essays/ Ph	$50.00	3.5	DK ADULT	10/3/03	Rick Smolan/ David Elliot Cohen	304
31									
32									
33									
34									

Delicious Library

Collections

- Books 29
- Movies 22
- Music 29
- Games 18
- Recent Imports
- Kid Stuff 23
- Science 5
- Living Room 27

Borrowers

- Bas Ording
- Freddy Anzures
- Greg Christie
- Imran Chaudhri
- Marcel Van Os
- Pat Coleman
- Patrick Coffman
- Steve Lemay

Books: by creator, a to z

Search

Details

Linked: How Everything Is Connected to Everything Else and What It Means

Albert-Laszlo Barabasi

publisher / label Plume
release date Tuesday, April 29, 2003

genres Organizational Behavior
Chaos & Systems
Dynamics

format Paperback
no. of pages 304
retail price $15.00
current value $7.99

amazon® users ★★★★☆

u.p.c. 780452284395
amazon® # 0452284392

A cocktail party. A terrorist cell. Ancient bacteria. An international conglomerate.

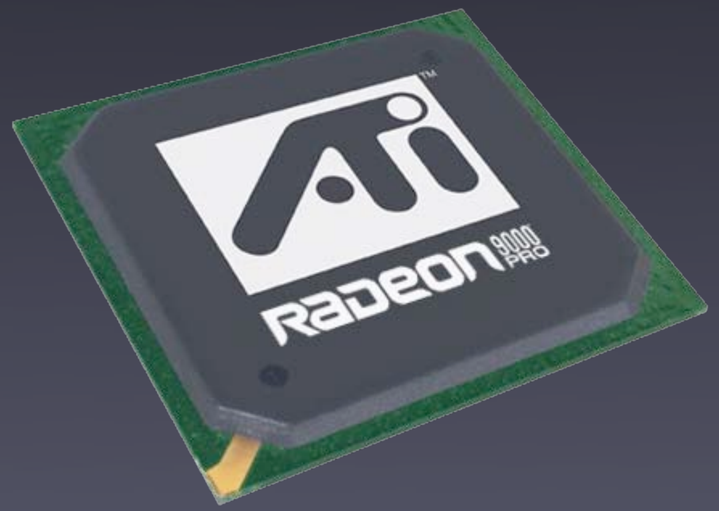
All are networks, and all are a part of a surprising scientific revolution. Albert-László Barabási, the nation's foremost expert in the new science of networks, takes us on an intellectual adventure to prove that social networks, corporations, and living organisms are more similar than previously thought. Grasping a full understanding of network science will someday allow us to design blue-chip businesses, stop the outbreak of deadly diseases, and influence the exchange of ideas and information. Just as James Gleick brought the discovery of chaos theory to the general public, Linked tells the story of the true science of the future.

Details | My Info | Similar

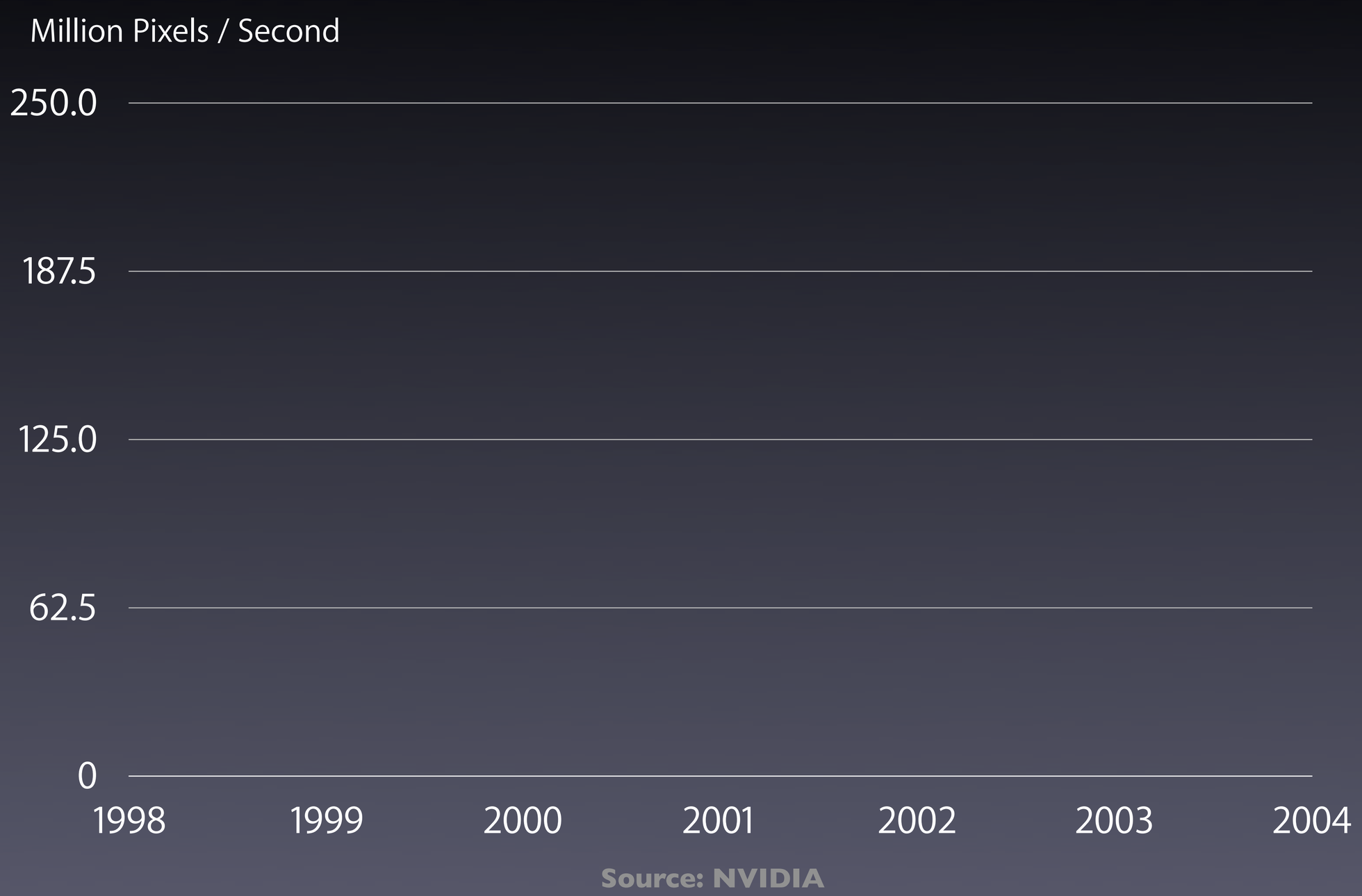
Build the Best Mac Application

- Start with great idea and target customer
- Design for Aqua and Mac OS X
- Keep it simple
- Iterate on an elegant layout
- Adopt killer technologies in Mac OS X
- Deliver high production value

Technology Advancements enable Experience Enhancements



Graphics Processing Power



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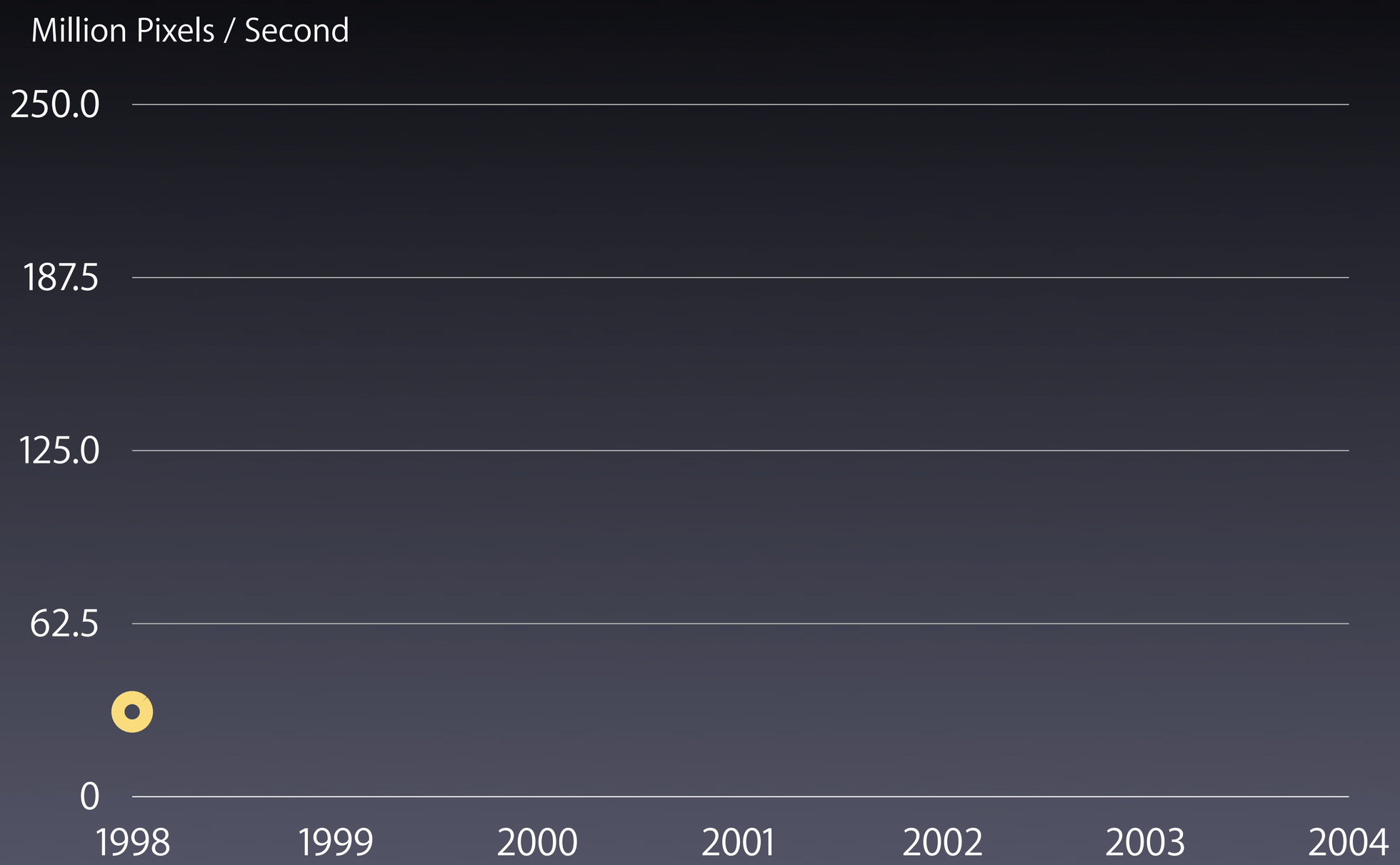
Graphics Processing Power



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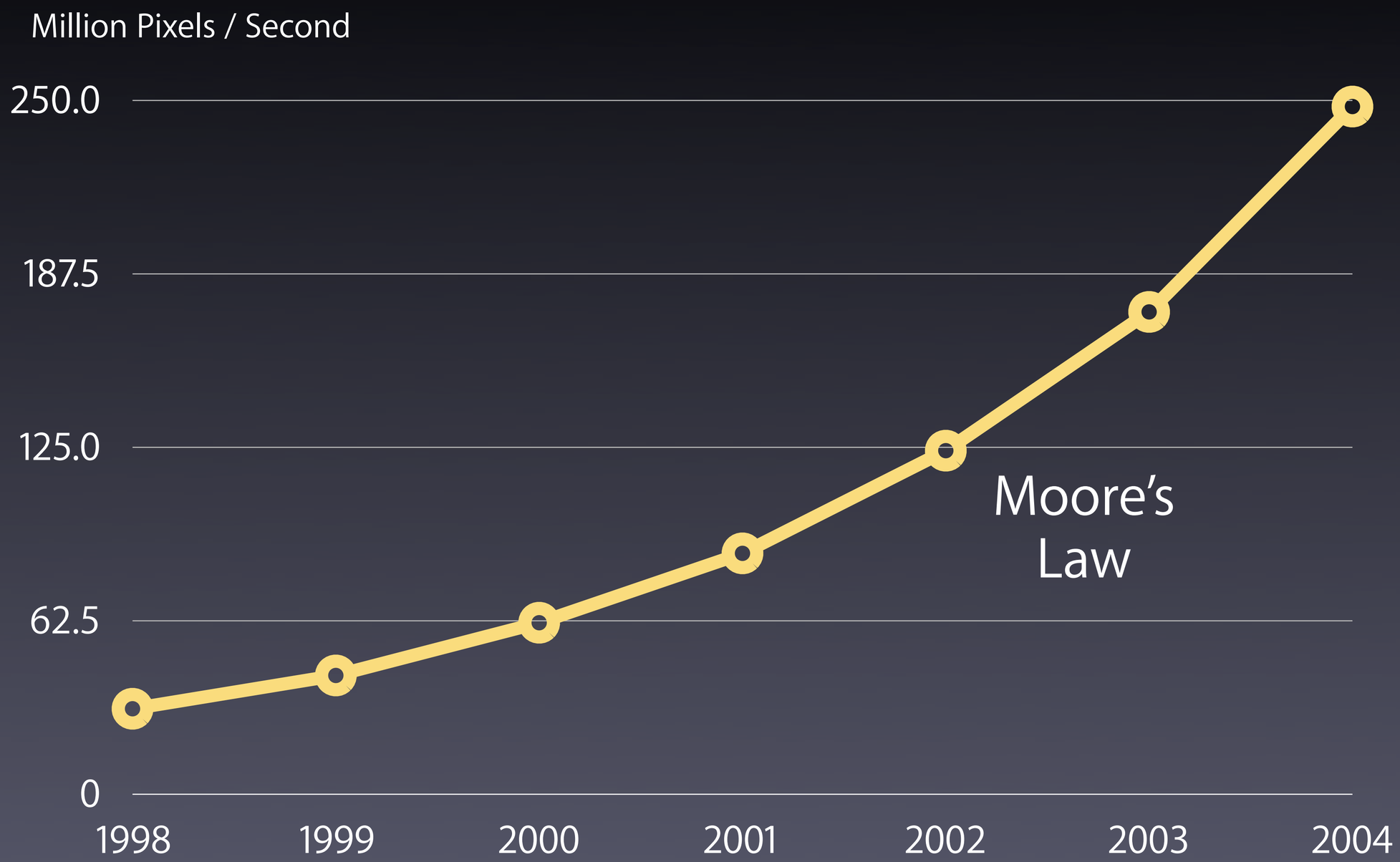
Graphics Processing Power



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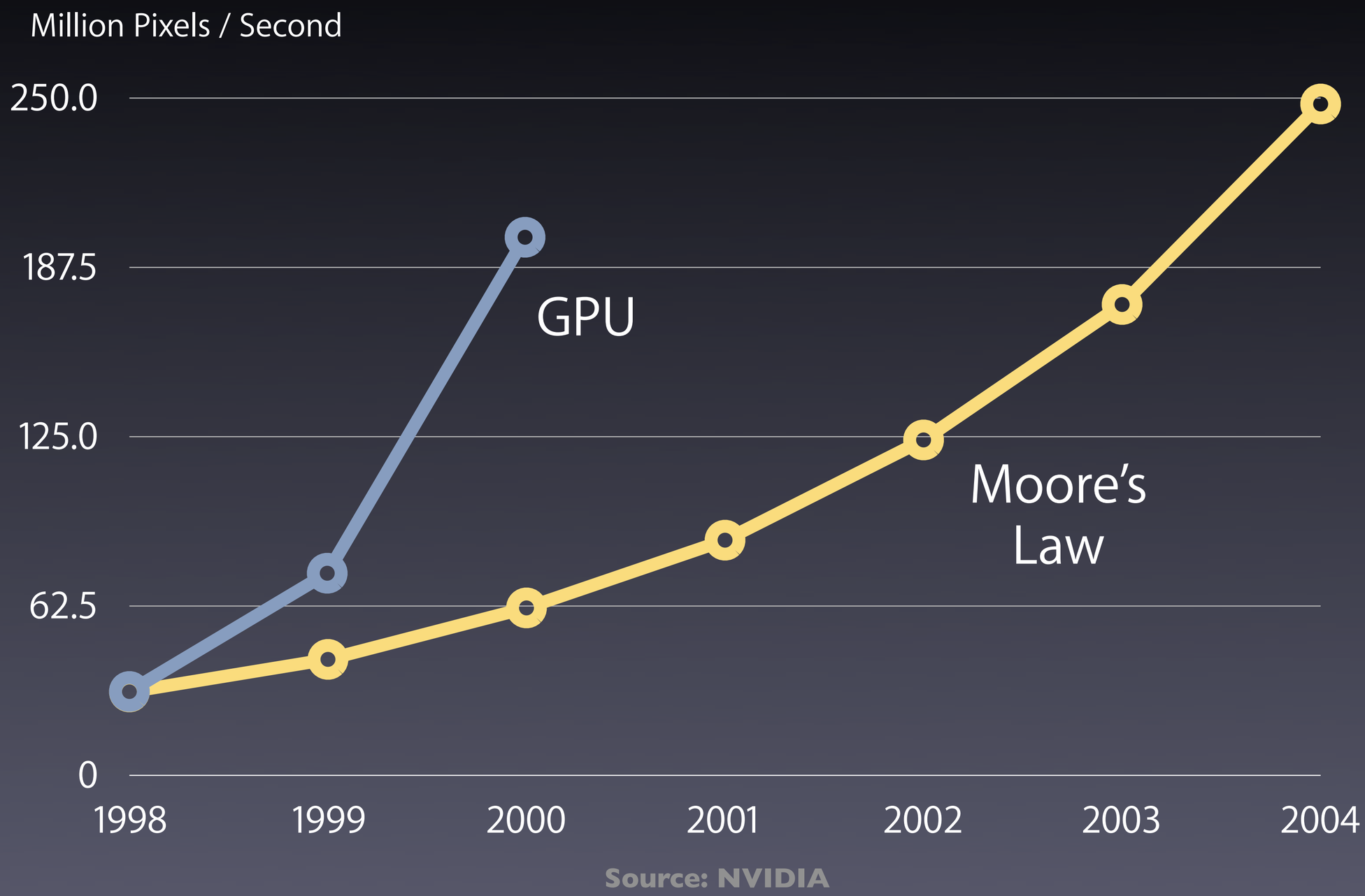
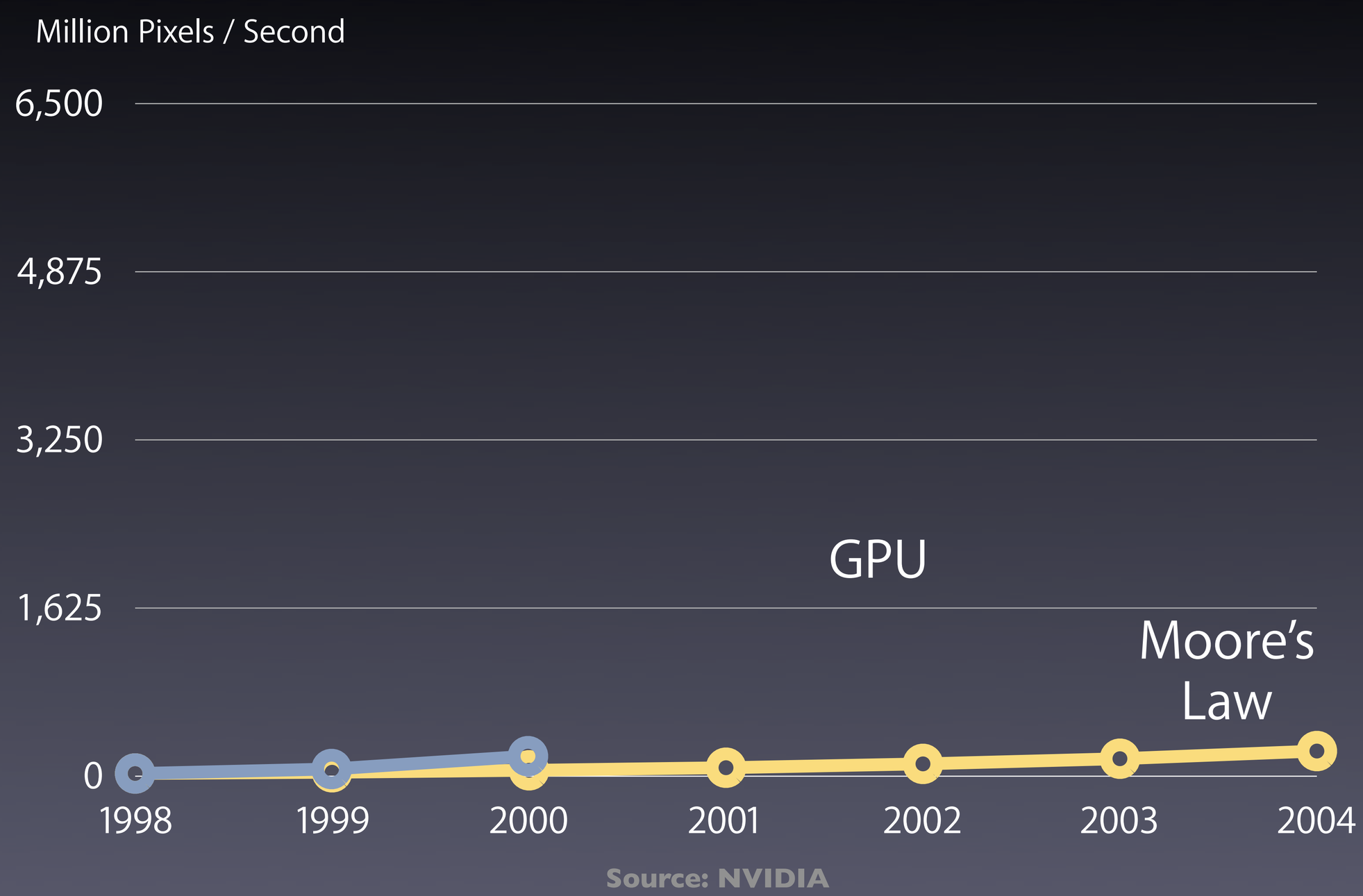
Graphics Processing Power



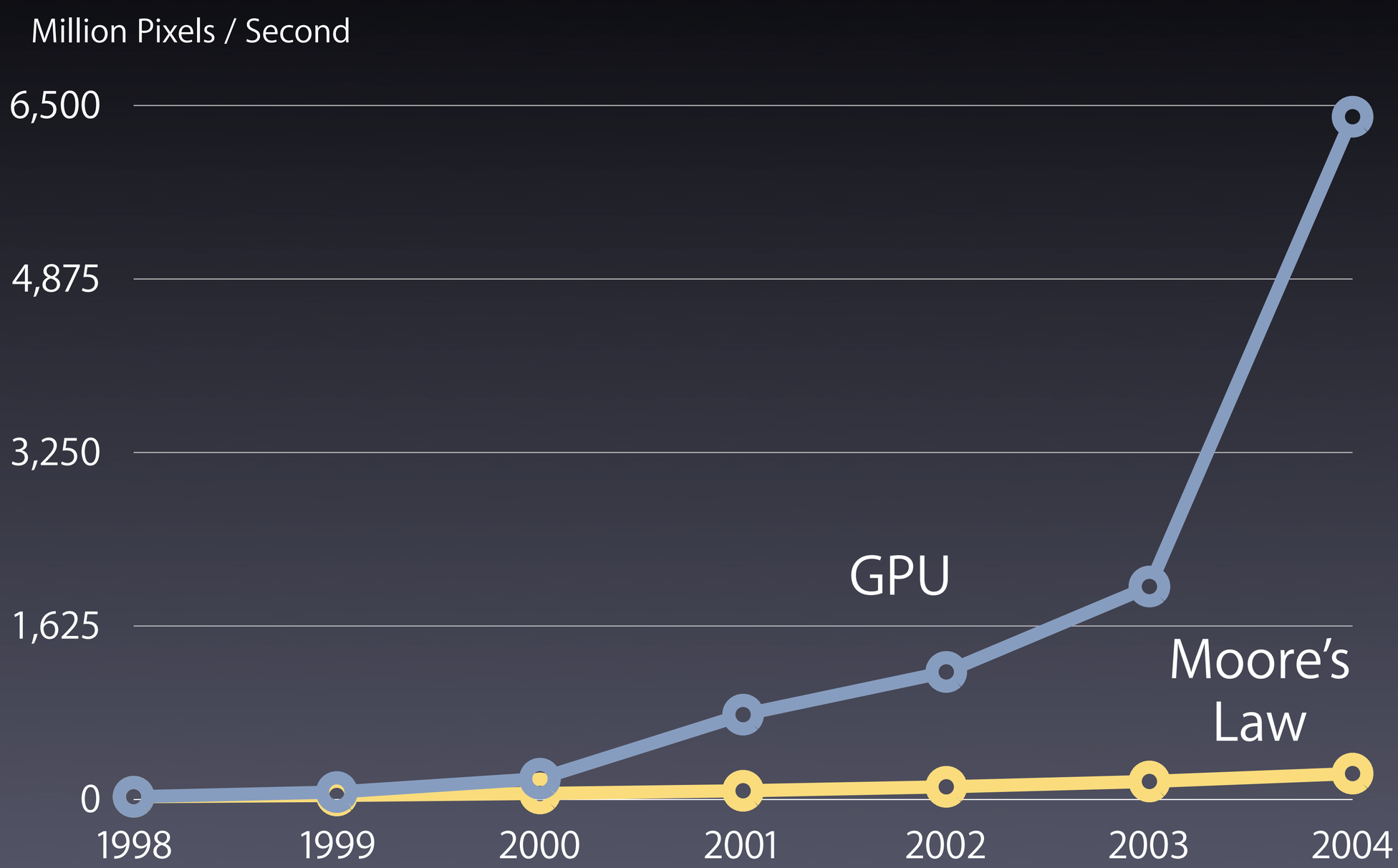
Source: NVIDIA

Graphics Processing Power



Source: NVIDIA

Graphics Processing Power



Source: NVIDIA

Benefits of Fast GPU

- Increased fidelity

Benefits of Fast GPU

- Increased fidelity

Benefits of Fast GPU

- Increased fidelity
- Decreased wait time

Tracouet
La piste des saveurs
NENDAZ
VOLVO AWD. LA SÉCURITÉ À LA PUISSANCE 4.

Render Time to Real Time

Final Cut Pro File Edit View Mark Modify Sequence Effects Tools Window Help

Mon 1:45 PM

Browser

Rocky | Effects

Name	Duration	In	Out
Backyard pool			
Imports			
DVDs			
Original imports			
Segmeted imports			
Kathy and Ray's Wedding tape 1	00:47:05;12	Not Set	Not Set
Kathy and Ray's Wedding tape 2	00:48:30;03	Not Set	Not Set
Mic test	00:03:23;15	Not Set	Not Set
Nils 2004			
Rocky			
Beginner	00:01:01;08	Not Set	Not Set
Beginner monkey bars			
Beginner with credits	00:01:34;14	Not Set	Not Set
Bleeding hands			
Eggs	00:03:11;05	Not Set	Not Set
Eggs			
Final Rocky movie	00:13:15;10	Not Set	Not Set
Interview			
Misc	00:20:13;02	Not Set	Not Set
Monkey bars			
Music			
On top of monkey bars			
Other			
Training	00:08:33;21	Not Set	Not Set
Training			
Training long	00:12:28;26	Not Set	Not Set

Viewer: Segment 1 from '6/2004-11/2004 for Subclip from Can You Feel the Love

Video | Stereo (a1a2) | Filters | Motion

00:00:38:24 100% 00:00:16;28

Writing Video...

Estimated Time: About 10 minutes

11%

Cancel

Canvas: Training in Rocky

Intro | Nils Singing final movie | Beginner | Eggs | Beginner with credits | Final Rocky movie | Training

00:08:33;21 88% 01:05:35;03

Timeline: Training in Rocky

Intro | Nils Singing final movie | Beginner | Eggs | Beginner with credits | Final Rocky movie | Training | Can You Feel the Love

RT 01:05:35;03

01:03:00;06 01:03:30;06 01:04:00;08 01:04:30;08 01:05:00;10 01:05:30;10 01:06:00;12 01:06:30;12 01:07:00;14 01:07:30;14

V3 V2 v1 V1

Segment Segment 7 Segment 9 from '11/2004

a1 A1 a2 A2 A3 A4 A5 A6

Gonna Fly Now.aiff Eye Of The Tiger.aiff

Final Cut Pro File Edit View Mark Modify Sequence Effects Tools Window Help

Mon 1:45 PM

Browser

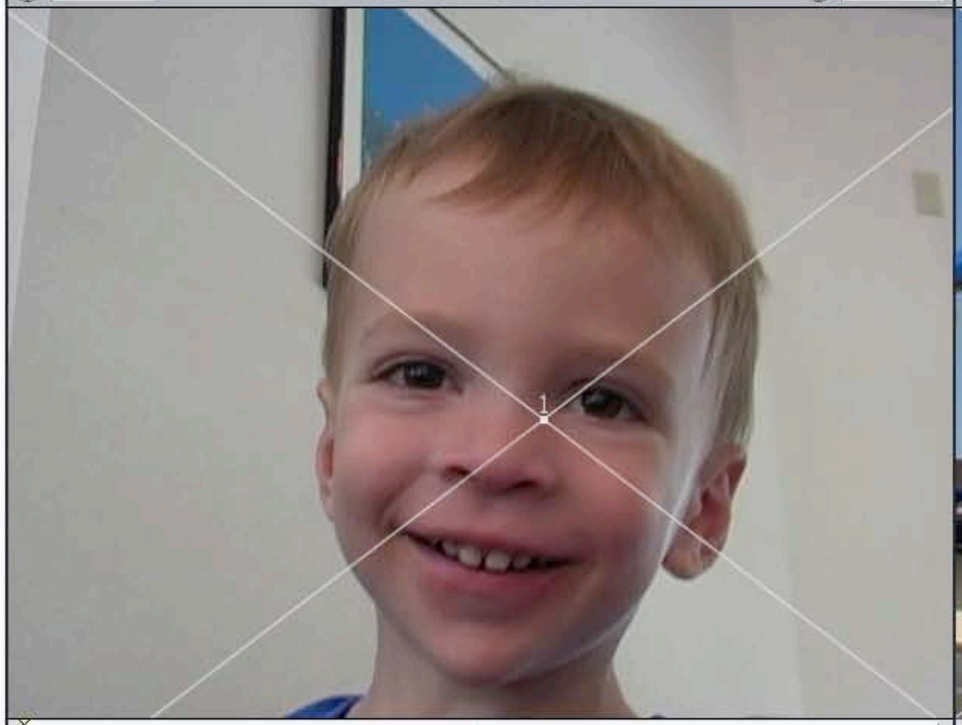
Rocky | Effects

Name	Duration	In	Out
Backyard pool			
Imports			
DVDs			
Original imports			
Segmeted imports			
Kathy and Ray's Wedding tape 1	00:47:05;12	Not Set	Not Set
Kathy and Ray's Wedding tape 2	00:48:30;03	Not Set	Not Set
Mic test	00:03:23;15	Not Set	Not Set
Nils 2004			
Rocky			
Beginner	00:01:01;08	Not Set	Not Set
Beginner monkey bars			
Beginner with credits	00:01:34;14	Not Set	Not Set
Bleeding hands			
Eggs	00:03:11;05	Not Set	Not Set
Eggs			
Final Rocky movie	00:13:15;10	Not Set	Not Set
Interview			
Misc	00:20:13;02	Not Set	Not Set
Monkey bars			
Music			
On top of monkey bars			
Other			
Training	00:08:33;21	Not Set	Not Set
Training			
Training long	00:12:28;26	Not Set	Not Set

Viewer: Segment 11 from '8/2004-11/2004 for Subclip from Can You Feel the Love

Video | Stereo (a1a2) | Filters | Motion

00:00:38:24 100% 00:00:16;28



Canvas: Training in Rocky

Intro | Nils Singing final movie | Beginner | Eggs | Beginner with credits | Final Rocky movie | Training

00:08:33;21 88% 01:05:35;03

Timeline: Training in Rocky

Intro | Nils Singing final movie | Beginner | Eggs | Beginner with credits | Final Rocky movie | Training | Can You Feel the Love

RT 01:05:35;03

01:03:00;06 01:03:30;06 01:04:00;08 01:04:30;08 01:05:00;10 01:05:30;10 01:06:00;12 01:06:30;12 01:07:00;14 01:07:30;14

V3 V2 v1 V1

Segment Segment 7 Segment 9 from '11/2004

a1 A1 a2 A2 A3 A4 A5 A6

Gonna Fly Now.aiff Eye Of The Tiger.aiff

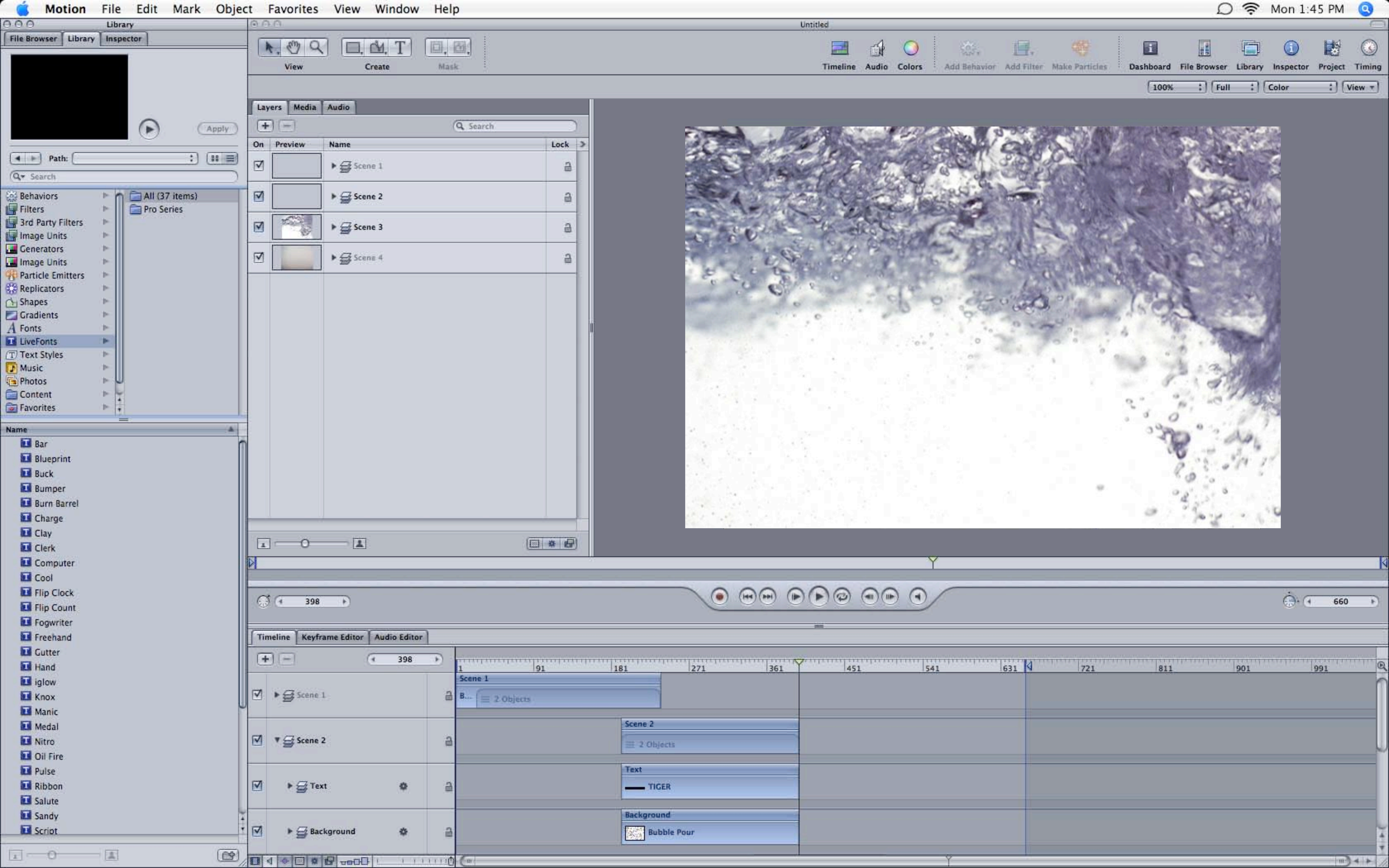
Benefits of Fast GPU

- Increased fidelity
- Decreased wait time

Benefits of Fast GPU

- Increased fidelity
- Decreased wait time
- Enables new applications

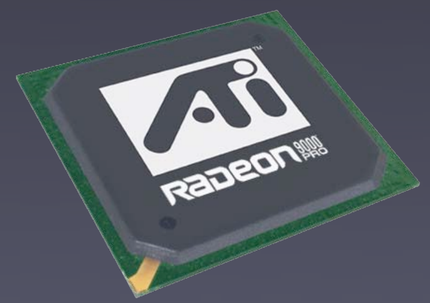
Video Chat with Jessi, Linda and Roger


Motion File Edit Mark Object Favorites View Window Help
Mon 1:45 PM
Library
File Browser Library Inspector
Apply
Path:
Search
Behaviors
Filters
3rd Party Filters
Image Units
Generators
Image Units
Particle Emitters
Replicators
Shapes
Gradients
Fonts
LiveFonts
Text Styles
Music
Photos
Content
Favorites
All (37 items)
Pro Series
Name
Bar
Blueprint
Buck
Bumper
Burn Barrel
Charge
Clay
Clerk
Computer
Cool
Flip Clock
Flip Count
Fogwriter
Freehand
Gutter
Hand
iglow
Knox
Manic
Medal
Nitro
Oil Fire
Pulse
Ribbon
Salute
Sandy
Script
Untitled
View Create Mask
Timeline Audio Colors Add Behavior Add Filter Make Particles Dashboard File Browser Library Inspector Project Timing
100% Full Color View
Layers Media Audio
Search
On Preview Name Lock
Scene 1
Scene 2
Scene 3
Scene 4
398
660
Timeline Keyframe Editor Audio Editor
398
1 91 181 271 361 451 541 631 721 811 901 991
Scene 1
2 Objects
Scene 2
2 Objects
Text
TIGER
Background
Bubble Pour

Benefits of Fast GPU

- Increased fidelity
- Decreased wait time
- Enables new applications

Powerful Processors: CPU and GPU



Powerful Graphics Libraries

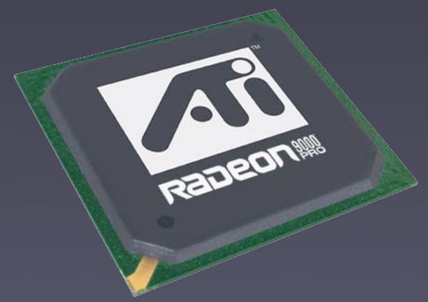
OpenGL

Quartz

CoreImage

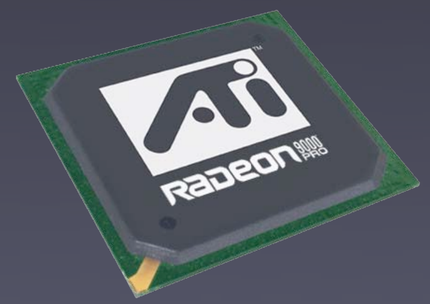
CoreVideo

QuickTime



Leverage and Insulate

OpenGL | Quartz | CoreImage | CoreVideo | QuickTime



#10: The Ultimate Driving Experience

#10: The Ultimate Driving Experience

#10: The Ultimate Driving Experience

#9: Build in Navigation System

iTunes

U2
Elapsed Time: 0:24

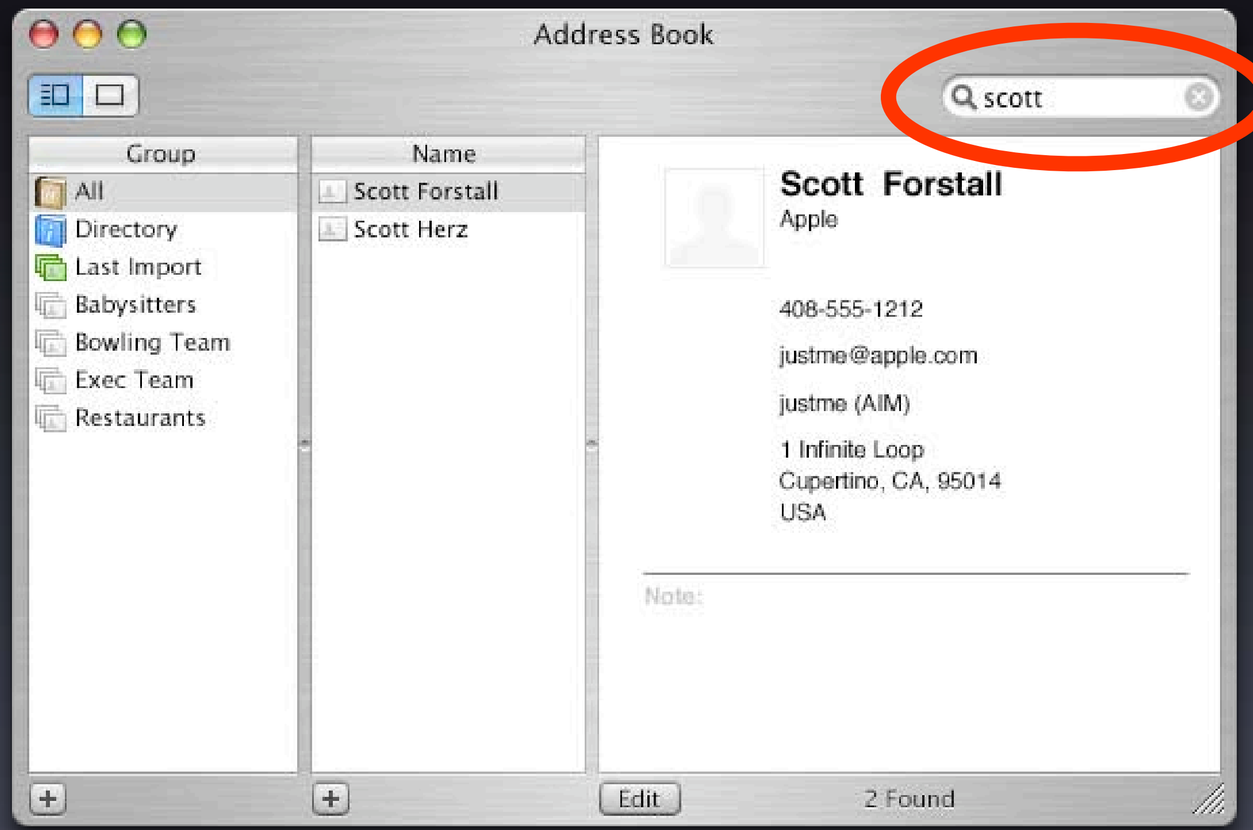
walk on
8 of 2140

Browse

Source
MOX trAcks
Radio
Music Store
Shopping Cart
Purchased Music
Shared Music
My Top Rated
Recently Played
Top 25 Most Played
Flight music
new

Song Name	Artist	Album	Track #	My Rating	Play Count	I
Walk On	U2	All That You Can't Leave Behind	4 of 11		20	5
walk on	U2	Elevation Tour - Oakland	23 of 23		4	3
Walking On The Moon	The Police	Message In A Box: The Compl...	1 of 21			
Carbon	Tori Amos	Scarlet's Walk	5 of 18		3	6
Don't Make Me Come To Vegas	Tori Amos	Scarlet's Walk	8 of 18		2	6
Walk On	U2	SJ Arena 4-20-01	21 of 21		1	4
I Won't Walk Away	Jewel	This way	10 of 14		4	5
Walk On (Single Version)	U2	U2 7	6 of 7		18	6

8 songs, 43.1 minutes, 53.8 MB


Address Book
scott
Group
All
Directory
Last Import
Babysitters
Bowling Team
Exec Team
Restaurants
Name
Scott Forstall
Scott Herz
Scott Forstall
Apple
408-555-1212
justme@apple.com
justme (AIM)
1 Infinite Loop
Cupertino, CA, 95014
USA
Note:
Edit
2 Found

iCal

Calendars
- General
- Apple Holiday
- US Holidays
- Vacation

December 2003

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30	1	2	3	4	5	6 • Zendo haircut 11, Courtney
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	...	1	2	3

December 2003
S M T W T F S
1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31

January 2004
S M T W T F S
1 2 3
4 5 6 7 8 9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30 31

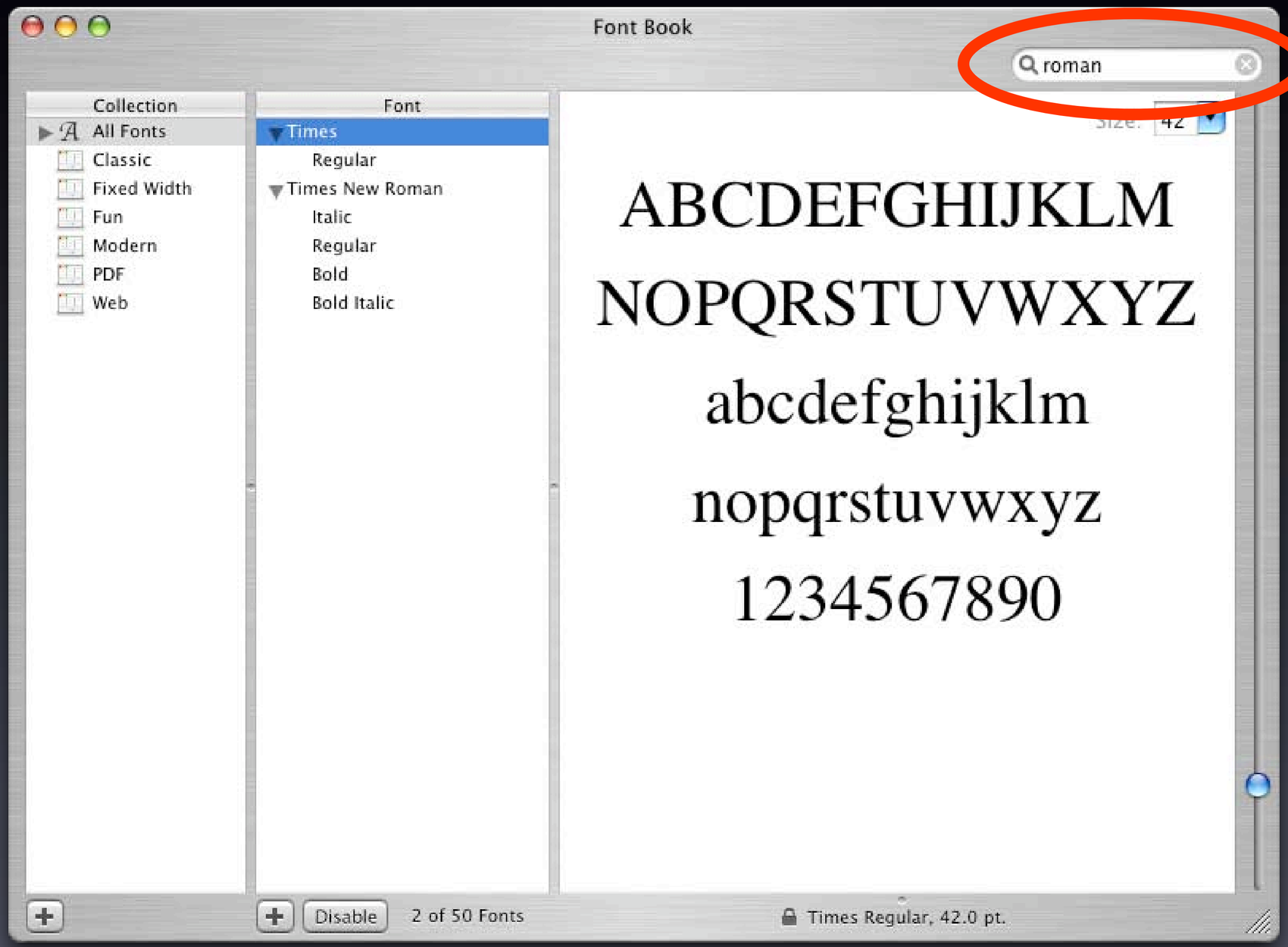
February 2004
S M T W T F S
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29

March 2004
S M T W T F S
1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31

	Search Result
3/27/04 11:00AM	Zendo haircut 11, Courtney
5/22/04 11:00AM	Zendo haircut 11, Courtney
7/17/04 11:00AM	Zendo haircut 11, Courtney
9/11/04 11:00AM	Zendo haircut 11, Courtney
11/6/04 11:00AM	Zendo haircut 11, Courtney
1/1/05 11:00AM	Zendo haircut 11, Courtney
2/26/05 11:00AM	Zendo haircut 11, Courtney
4/23/05 11:00AM	Zendo haircut 11, Courtney

Day Week Month

hair


Font Book
roman
Collection
All Fonts
Classic
Fixed Width
Fun
Modern
PDF
Web
Font
Times
Regular
Times New Roman
Italic
Regular
Bold
Bold Italic
Size:
42
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
abcdefghijklm
nopqrstuvwxyz
1234567890
Disable
2 of 50 Fonts
Times Regular, 42.0 pt.

AddressBook

Aggregate

book

1 of 15 selected

Groups & Files	File Name	Code
M AddressBook	ABAddressBook.h	
Targets	ABAddressBook.m	
Executables	ABAddressBook_MailRecent.m	
Errors and Warnings	ABAddressBook_Private.h	
Implementation File	ABAddressBookC.h	
NIB Files	ABAddressBookC.m	
Find Results	Address Book.app	
Project Symbols	AddressBook.exp	
	AddressBook.framework	
	AddressBook.framework	
	AddressBook.h	
	AddressBook.icns	
	AddressBookUI.h	
	libAddressBook.a	
	libAddressBook.exp	

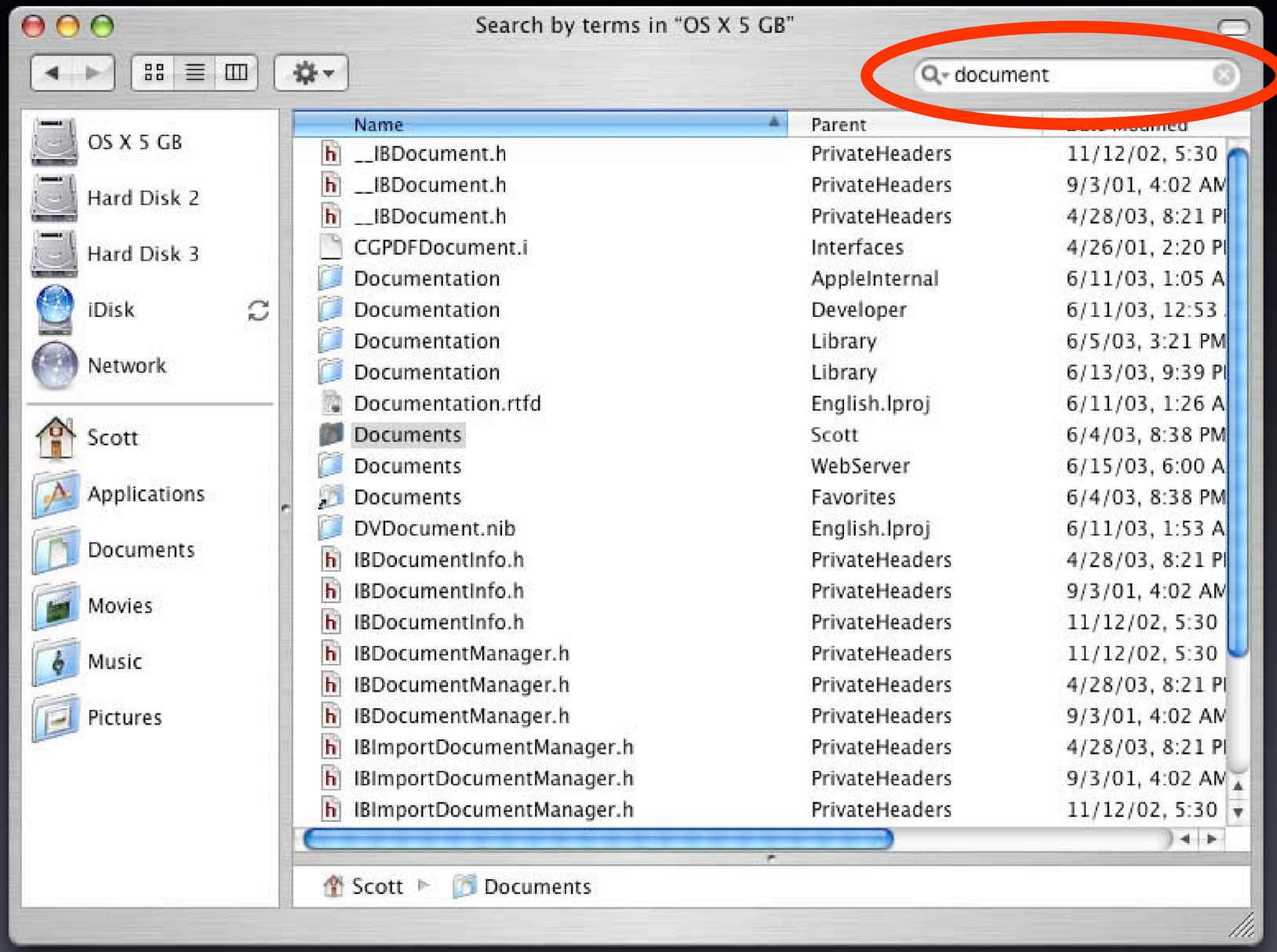
ABAddressBook.h:1 <No selected symbol>

```
//
//  ABAddressBook.h
//  AddressBook Framework
//
//  Copyright (c) 2002-2003 Apple Computer. All rights reserved.
//

#import <AddressBook/ABTypedefs.h>
#import <AddressBook/ABGlobals.h>

@class ABRecord;
@class ABPerson;
@class ABGroup;
@class ABSearchElement;
@class ABConverter;

// ============================================================================
//      OpenURL support
```


Search by terms in "OS X 5 GB"
document
OS X 5 GB
Hard Disk 2
Hard Disk 3
iDisk
Network
Scott
Applications
Documents
Movies
Music
Pictures
Name
Parent
__IBDocument.h PrivateHeaders 11/12/02, 5:30
__IBDocument.h PrivateHeaders 9/3/01, 4:02 AM
__IBDocument.h PrivateHeaders 4/28/03, 8:21 PM
CGPDFDocument.i Interfaces 4/26/01, 2:20 PM
Documentation AppleInternal 6/11/03, 1:05 AM
Documentation Developer 6/11/03, 12:53
Documentation Library 6/5/03, 3:21 PM
Documentation Library 6/13/03, 9:39 PM
Documentation.rtfd English.lproj 6/11/03, 1:26 AM
Documents Scott 6/4/03, 8:38 PM
Documents WebServer 6/15/03, 6:00 AM
Documents Favorites 6/4/03, 8:38 PM
DVDocument.nib English.lproj 6/11/03, 1:53 AM
IBDocumentInfo.h PrivateHeaders 4/28/03, 8:21 PM
IBDocumentInfo.h PrivateHeaders 9/3/01, 4:02 AM
IBDocumentInfo.h PrivateHeaders 11/12/02, 5:30
IBDocumentManager.h PrivateHeaders 11/12/02, 5:30
IBDocumentManager.h PrivateHeaders 4/28/03, 8:21 PM
IBDocumentManager.h PrivateHeaders 9/3/01, 4:02 AM
IBImportDocumentManager.h PrivateHeaders 4/28/03, 8:21 PM
IBImportDocumentManager.h PrivateHeaders 9/3/01, 4:02 AM
IBImportDocumentManager.h PrivateHeaders 11/12/02, 5:30
Scott
Documents

Mac OS X Tiger

Finder File Edit View Go Window Help

Mon 1:45 PM

Finder File Edit View Go Window Help

Spotlight

Finder File Edit View Go Window Help

Mon 1:45 PM

Spotlight National Park

Show all (203)

Top Hit
Confirmation of reservation

Contacts
Ahwahnee Hotel
Old Faithful Visitor Center

Images
Deer
Bison Sunset
Geyser

Events & To Do's
Yosemite Trip May 2005
Yellowstone Trip December...
Bryce Canyon Trip June 2004

Mail Messages
Confirmation of reservation
Can I come?
Re: Where should we stay?
Where should we stay?

PDF Documents
Ahwahnee Hotel - Overview
Bryce Canyon map
Yellowstone Park map
Yosemite Valley Hiking trails
Old Faithful Lodge - Overvi...

Folders
Yosemite
Bryce Canyon

Spotlight Preferences...

Finder File Edit View Go Window Help

Mon 1:45 PM

Spotlight National Park

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Top Hit
Confirmation of reservation

Contacts
Ahwahnee Hotel
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Bison Sunset
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PDF Documents
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Yosemite Valley Hiking trails
Old Faithful Lodge - Overvi...

Folders
Yosemite
Bryce Canyon

Spotlight Preferences...

Finder File Edit View Go Window Help

Mon 1:45 PM

Spotlight: National Park

203 Results

National Park

Contacts

Ahwahnee Hotel	Today	2:12 pm
Old Faithful Visitor Center	Yesterday	10:04 am
Bryce Canyon Lodge	Yesterday	8:59 am

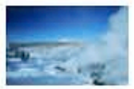
Images

Deer
June 27 3:40 PM

Bison Sunset
June 27 3:21 PM

Roadside Rock
June 27 3:18 PM

Bison up close
June 27 11:19 AM


Geyser
June 27 10:21 AM

13 more...

Events & To Do's

Yosemite Trip May 2005	Today	8:15 am
Yellowstone Trip December 2004	November 2	8:30 am
Bryce Canyon Trip June 2004	June 16	10:00 am

Mail Messages

Yosemite reservations	Confirmation of reservation	Today	2:35 pm
Greg Christie	Secret beach	Today	9:24 am
Phil Schiller	Can I come?	January 10	11:43 pm
Greg Christie	Re: Where should we stay?	January 2	9:18 am
Steve Jobs	Where should we stay?	January 2	9:15 am

117 more...

PDF Documents

Ahwahnee Hotel – Overview	Today	1:10 pm
Bryce Canyon map	January 3	10:21 am
Yellowstone Park map	January 3	9:55 am
Yosemite Valley hiking trails	January 3	9:52 am
Old Faithful Lodge – Overview	January 2	2:03 pm

6 more...

Folders

Yosemite	Today	2:28 pm
Bryce Canyon	January 3	4:21 pm
Yellowstone	January 2	1:19 pm
Zion	December 23	9:14 am

Group by:
Category
Kind
Date
People
Flat List

Sort Within Group by:
Name
Date
Kind
People
Popularity

When:
Any Date
Today
Since Yesterday
This Week
This Month
This Year

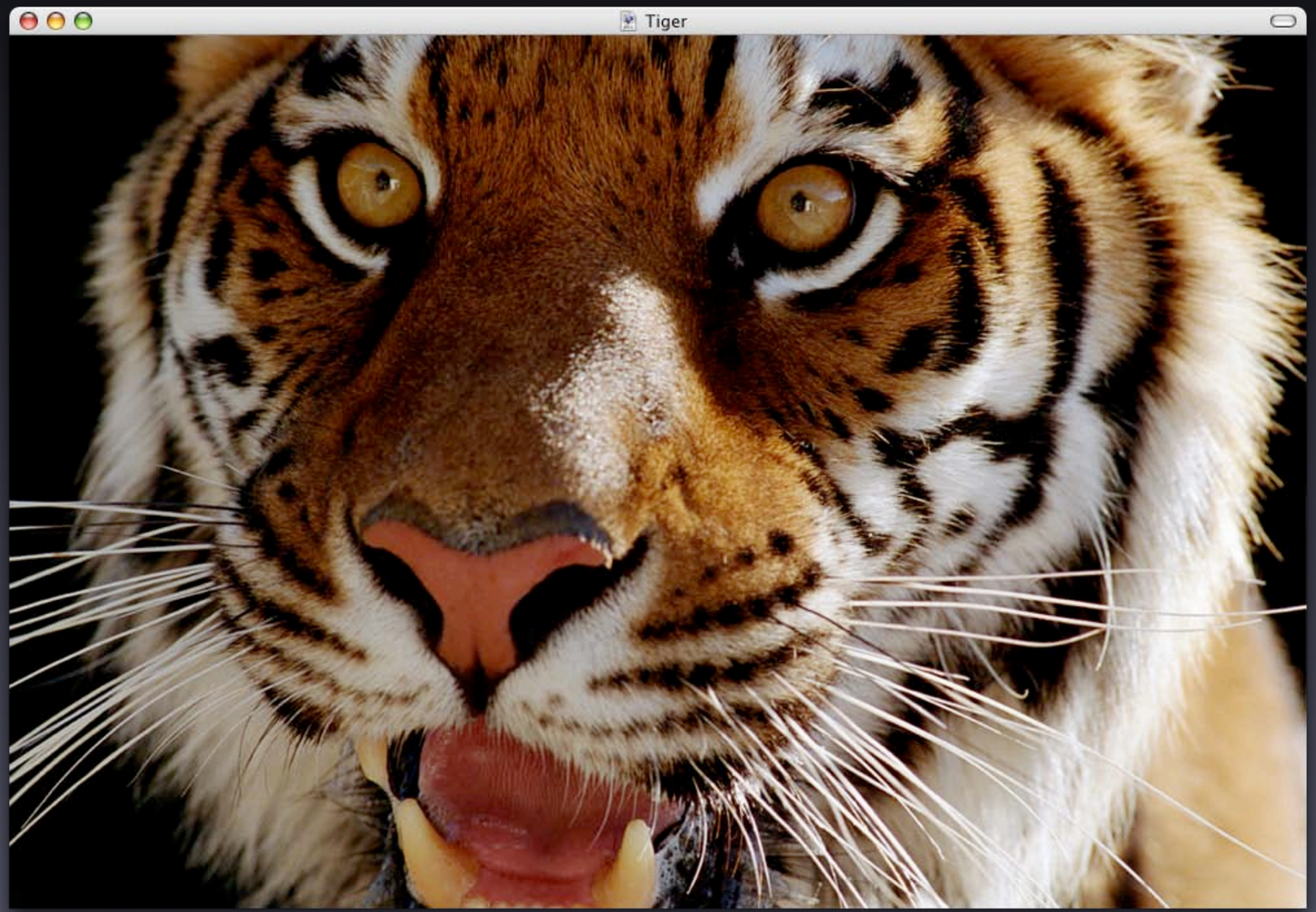
Where:
Everywhere
Home
My Hard Drive
Firewire Hard Drive
iPod

Spotlight: Your Move

- Embrace metadata

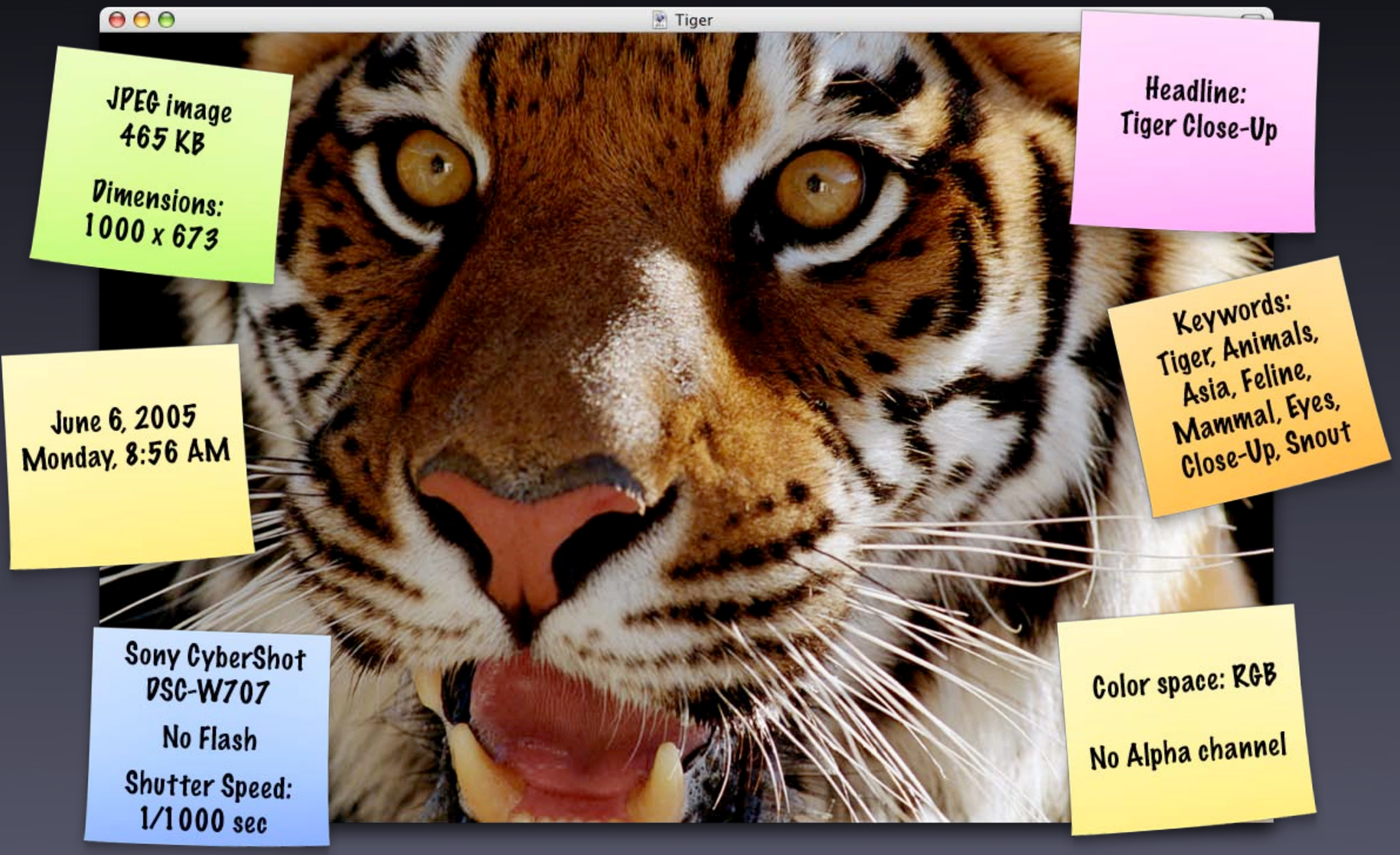
Embrace Metadata

Augment



Embrace Metadata

Augment



Embrace Metadata

Preserve

Embrace Metadata

Preserve

Spotlight: Your Move

- Embrace metadata

Spotlight: Your Move

- Embrace metadata
- Spotlight-enable documents

Spotlight: Behind the Curtain

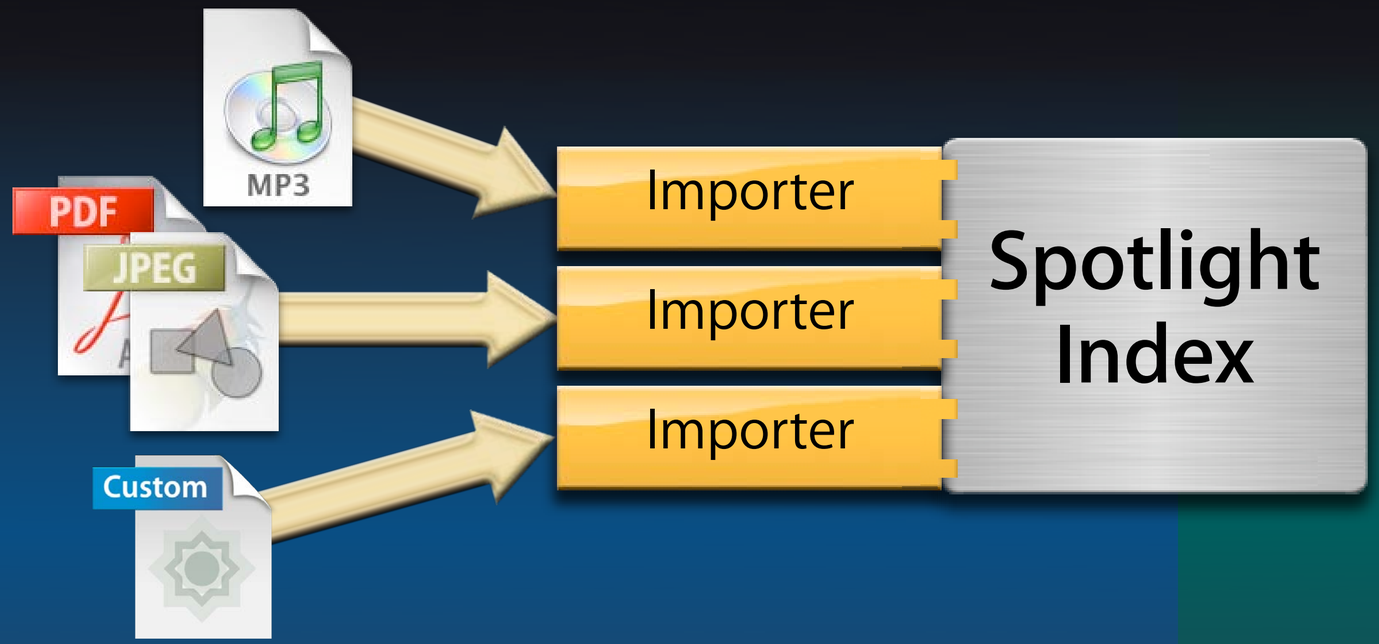
Spotlight: Behind the Curtain

Populating

Spotlight Index

Using

Populating


MP3
PDF
JPEG
Custom
Importer
Importer
Importer
Spotlight
Index

Spotlight: Your Move

- Embrace metadata
- Spotlight-enable documents

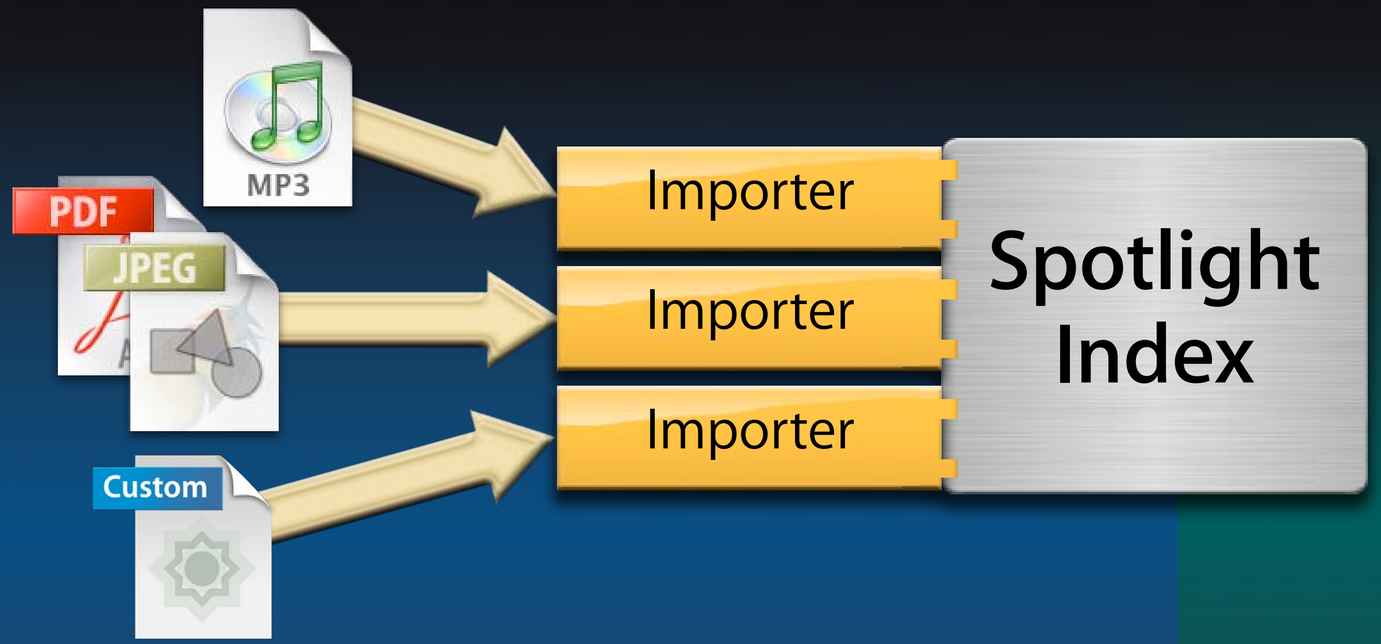
Spotlight: Your Move

- Embrace metadata
- Spotlight-enable documents
  - Write Spotlight importer plug-in

Spotlight: Your Move

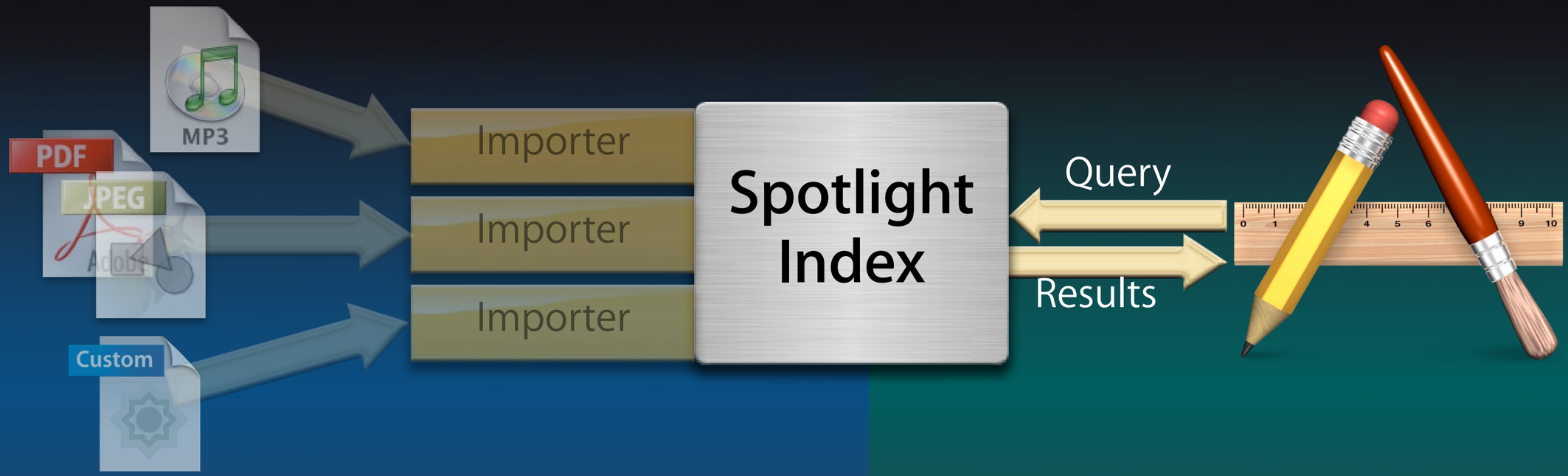
- Embrace metadata
- Spotlight-enable documents
  - Write Spotlight importer plug-in
- Use Spotlight APIs

Spotlight: Behind the Curtain

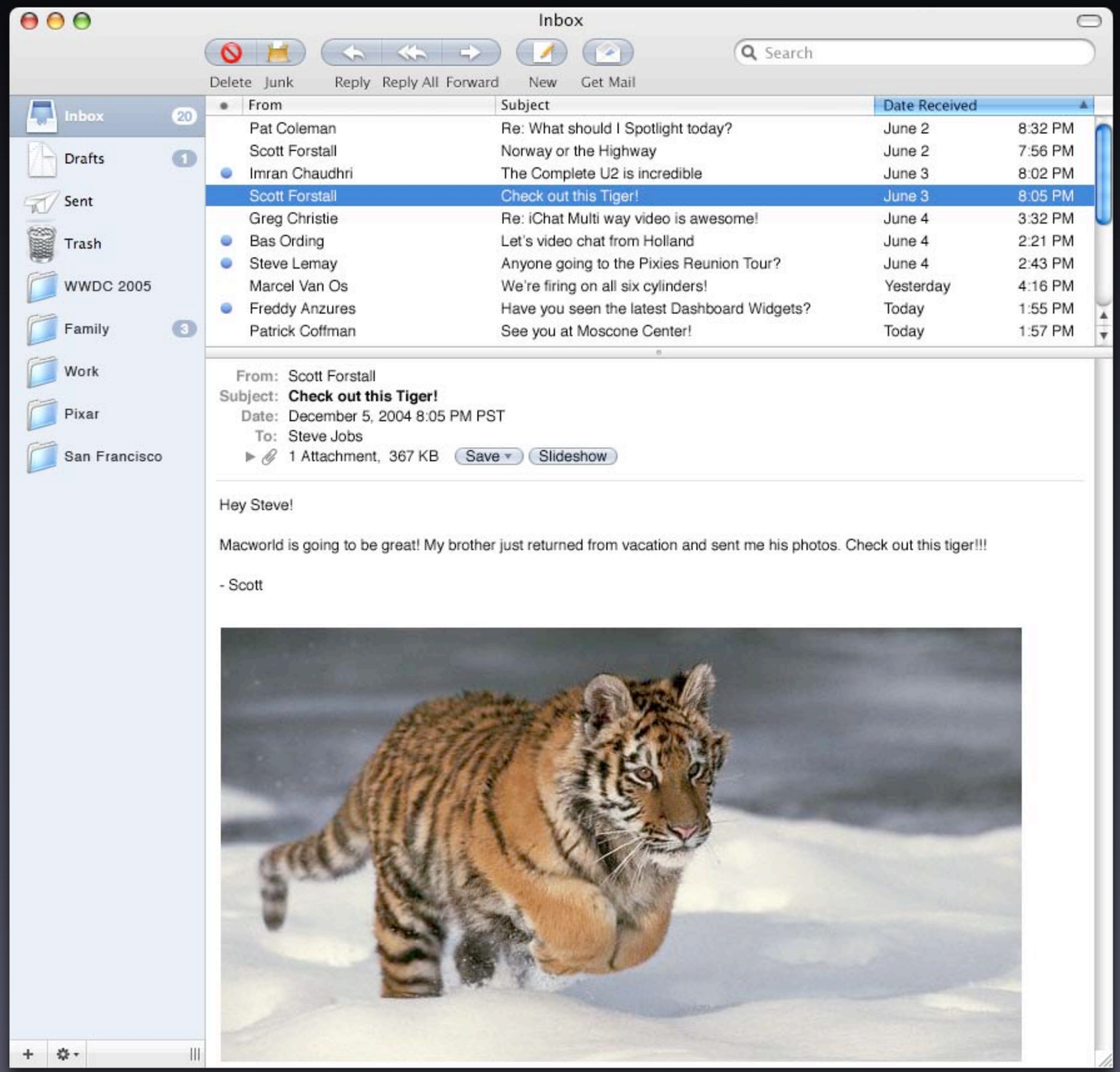


Using

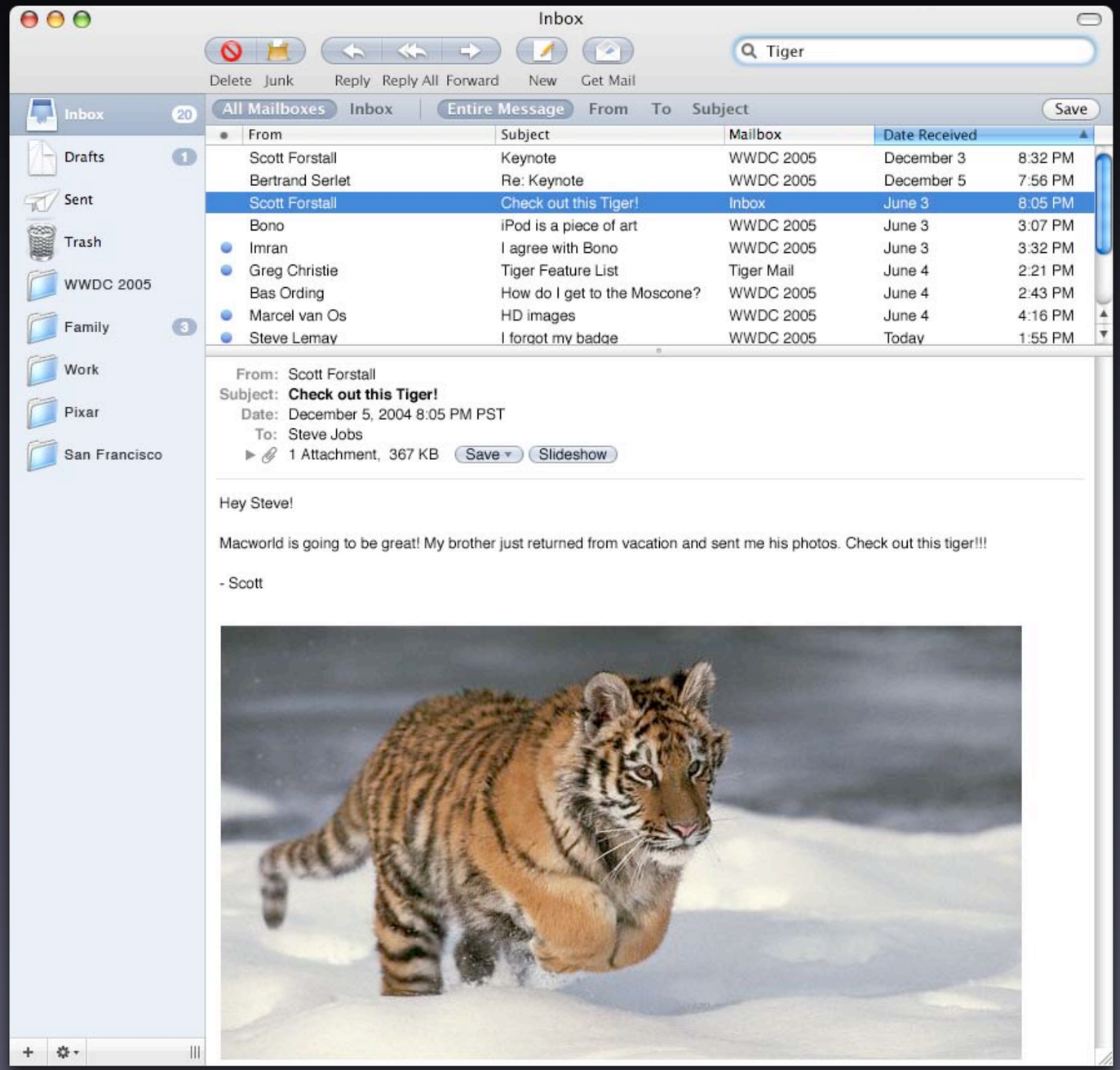
Using


MP3
PDF
JPEG
Custom
Importer
Importer
Importer
Spotlight Index
Query
Results

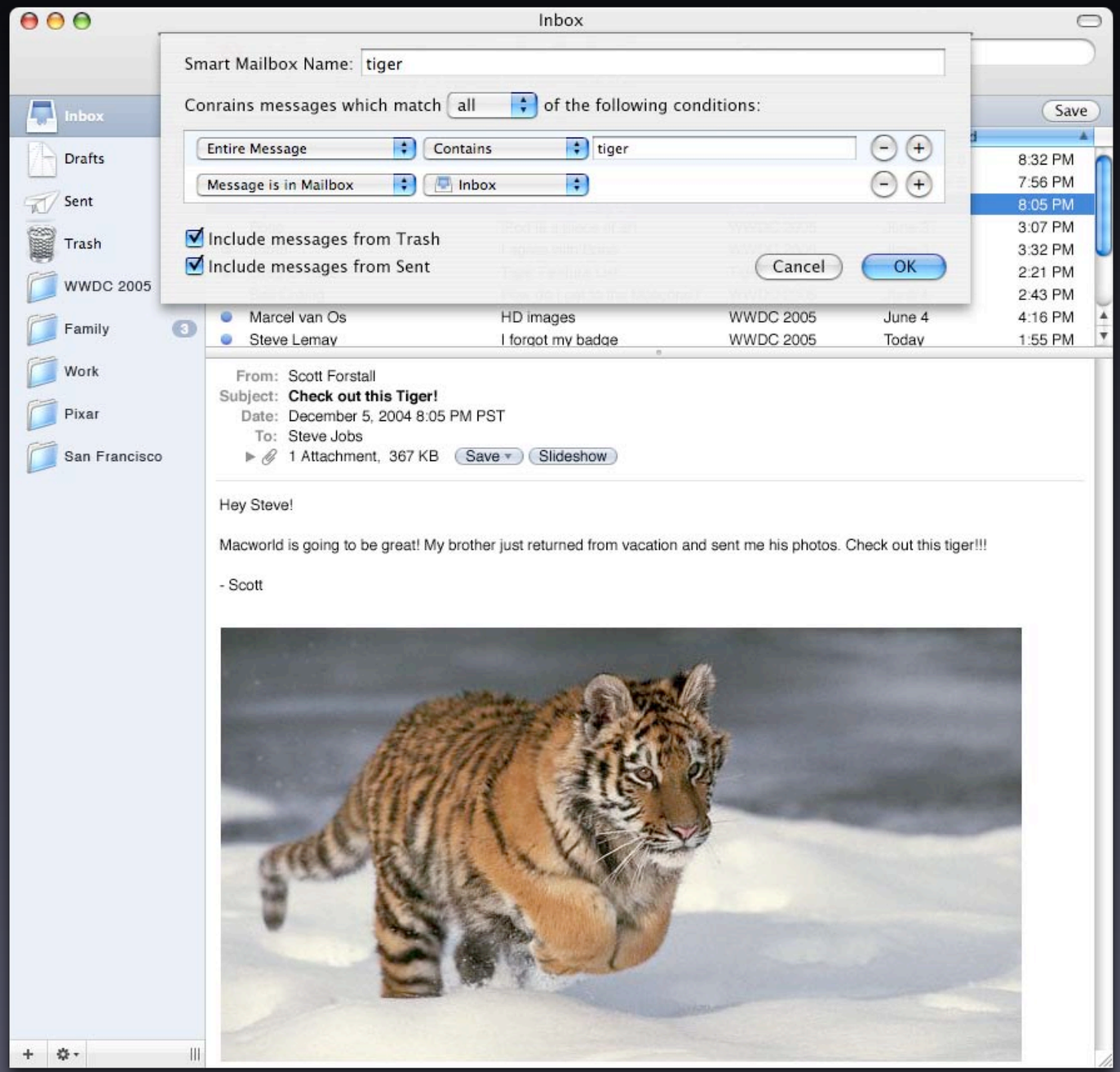
Use Spotlight APIs



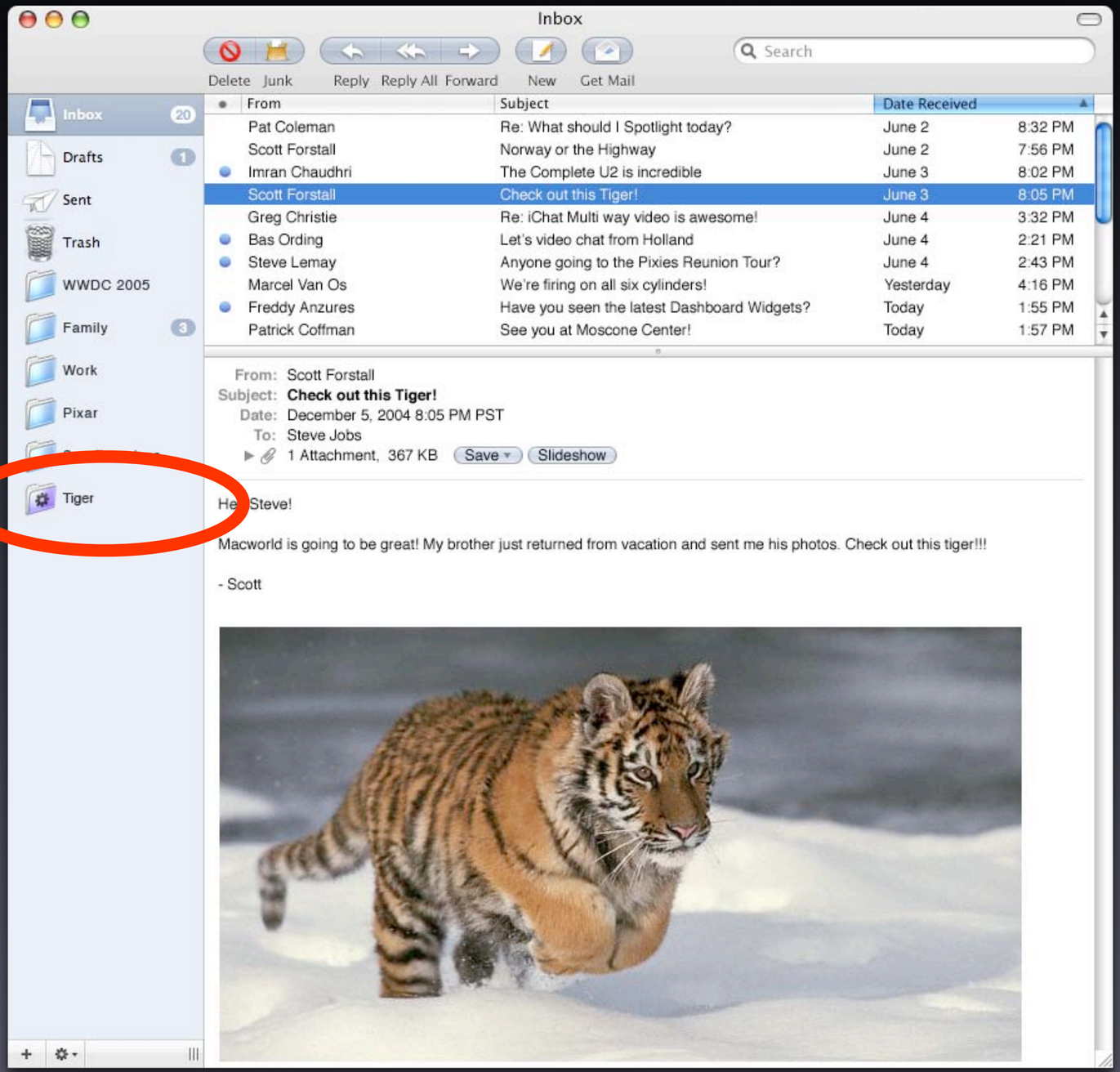
Use Spotlight APIs



Use Spotlight APIs



Use Spotlight APIs



Spotlight: Your Move

- Embrace metadata
- Spotlight-enable documents
  - Write Spotlight importer plug-in
- Use Spotlight APIs

#9: Building Navigation System

#9: Build in Navigation System

#9: Build in Navigation System

Finder File Edit View Go Window Help
Mon 1:45 PM
Spotlight National Park
Show all (203)
Confirmation of reservation
Ahwahnee Hotel
Old Faithful Visitor Center
Deer
Bryce Canyon Trip June 2004
Confirmation of reservation
Can I come?
Re: Where should we stay?
Where should we stay?
Ahwahnee Hotel - Overview
Bryce Canyon map
Yellowstone Park map
Yosemite Valley Hiking trails
Old Faithful Lodge - Overvi...
Yosemite
Bryce Canyon
Spotlight Preferences...
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NASDAQ 3450.05 + 4.50
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Quotes delayed by 20 mins
Imagine
3:19
Dictionary Thesaurus
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DERIVATIVES
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73°
WED THU FRI SAT SUN MON
79° 89° 95° 83° 78° 56°
34° 45° 64° 37° 32° 32°
8,675,309
Apple Computer Inc.
main 1-800-MY-APPLE
work 1 Infinite Loop
Cupertino CA 95014
United States
Hayes
Hayes How You Doing (415) 863-5545
236 Fifth St
San Francisco, CA 94102
Hayes Street Grill (415) 345-9874
23 17th St
San Francisco, CA 92340
Hayes You Hayes Me (415) 345-9874
324 Hayes St
San Francisco, CA 94102
130-142 of 142
Fri MAY 27
reminders:
call dad
order mac os x tiger
Airline: Virgin
Flight No: VS21
Departure City: 7:02:23 AM
IAD - Washington DC
Arrival City: 11:03 PM
NRT - Tokyo
Gate: 12B
25 Minutes Late
457 MPH 17293 FEET
Convert Currency
US Dollars
Japanese Yen
$1.27 = 151.39¥
Last updated: 7/3/03 8:05 AM

Dashboard Widget Guidelines

Dashboard Widget Guidelines

- Don’t bogart the whole screen

Finder File Edit View Go Window Help

Mon 1:45 PM

Spotlight National Park

Show all (203)

Top Hit — Confirmation of reservation

Contacts — Ahwahnee Hotel

Old Faithful Visitor Center

Deer

Sunset

Yosemite Trip May 2005

Yellowstone Trip December...

Bryce Canyon Trip June 2004

Mail Messages — Confirmation of reservation

Can I come?

Re: Where should we stay?

Where should we stay?

Hotel - Overview

yon map

ne Park map

Valley Hiking trails

ful Lodge - Overvi...

yon

Preferences...

Spotlight: National Park

Contacts

Ahwahnee Hotel — Today

Old Fa — Yesterday

Bryce — Yesterday

Images

Deer

on up close

Events &

Yosen — Today 8:15 am

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117 more...

PDF Documents

Ahwahnee Hotel - Overview

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Yellowstone Park map

Yosemite Valley hiking trails

Old Faithful Lodge - Overview

Group by:

When:
Any Date
Today
Since Yesterday
This Week
This Month
This Year

Where:
Everywhere
Home
My Hard Drive

Drafts

Sent

Trash

Junk

From

Kurt Russel

Avie Tevanian — gonna go

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AM

LONDON

Translate from English

French Fries

To French

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NASDAQ	3450.05	+ 4.50
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1d 3m 6m 1y 2y 3y

128 126 124 122

Aug Sep Oct Nov Dec Jan

Quotes delayed by 20 mins

Imagine

3:19

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DERIVATIVES

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H: 67°
San Francisco
L: 43°

73°

WED	THU	FRI	SAT	SUN	MON
79°	89°	95°	83°	78°	56°
34°	45°	64°	37°	32°	32°

Hayes

Hayes How You Doing	(415) 863-5545	236 Fifth St San Francisco, CA 94102
Hayes Street Grill	(415) 345-9874	23 17th St San Francisco, CA 92340
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130-142 of 142

Fri MAY 27

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8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
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reminders:
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Video Chat with Jessie, Linda and Roger

Airline: Virgin — Flight No: VS21

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128 126 124 122

Aug Sep Oct Nov Dec Jan

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Herald-Times News — Top Stories

Plloaso mako nuto uf cakso... – Today, 11:43 AM

Lorem ipsum dolor sit amet, consectetur adipiscing elit, set eiusmod tempor incidunt et labore et dolore magna aliquam. Ut enim ad minim veniam, quis nostrud exerc.

Uf cak vux noaw yerw phuno... – Today, 11:19 AM

Maecenas scelerisque tincidunt velit. Donec mattis, massa id ultrices facilisis, magna dolor sollicitudin felis, non dictum dui arcu non eros. Morbi in felis sit amet arcu suscipit posuere.

Efed, quiel ba mada su otrenzr... – Today, 11:12 AM

Mauris consequat facilisis ante. Ut luctus nulla quis purus. Integer rhoncus nulla vel ante. Morbi malesuada pharetra ligula. Donec sollicitudin quam non nulla.

Proudgs hus yag su ba dagar... - Today, 11:01 AM

Nulla facilisi. Proin in quam morbi fringilla.Vivamus rhoncus, neque in varius tincidunt, mauris mi scelerisque. Integer rhoncus nulla vel ante.

Noga wipont trenzsa schengos... – Today, 10:57 AM

rure dolor in reprehend incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Siructiun ruos nust apoply tyu... – Today, 10:51 AM

Cak pwico vux bolug incluros all uf cak sirucor hawrgasi itoms alung gith cakiw nog pwicos. Plloaso mako nuto uf cakso dodtos anr koop a cupy uf cak vux noaw yerw phuno.

Plloaso mako nuto uf cakso... – Yesterday, 9:51 PM

Uf cak vux noaw yer... – Yesterday, 9:44 PM

Efed, quiel ba mada su... – Yesterday, 8:32 PM

Proudgs hus yag su ba dagar... - Yesterday, 8:13 PM

Noga wipont trenzsa... – Yesterday, 7:22 PM

Siructiun ruos nust apoply... – Yesterday, 6:52 PM

Plloaso mako nuto uf cakso... – Yesterday, 9:51 PM

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73°

FRI	SAT	SUN	MON
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130-142 of 142

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8	9	10	11	12	13	14
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order mac os x tiger

Arrival City: 11:03 PM

NRT - Tokyo

Gate: 12B

25 Minutes Late

457 MPH 17293 FEET

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130-142 of 142
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San Francisco 73°
WED THU FRI SAT SUN MON
79° 89° 95° 83° 78° 56°
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Dashboard Widget Guidelines

- Don’t bogart the whole screen

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- Don’t bogart the whole screen
- One widget per function

Finder File Edit View Go Window Help

Mon 1:45 PM

Spotlight National Park

Show all (203)

Top Hit: Confirmation of reservation

Contacts: Ahwahnee Hotel; Old Faithful Visitor Center

Images: Deer; Bison Sunset; Geyser

Events & To Do's: Yosemite Trip May 2005; Yellowstone Trip December...; Bryce Canyon Trip June 2004

Mail Messages: Confirmation of reservation; Can I come?; Re: Where should we stay?; Where should we stay?

PDF Documents: Ahwahnee Hotel - Overview; Bryce Canyon map; Yellowstone Park map; Yosemite Valley Hiking trails; Old Faithful Lodge - Overvi...

Folders: Yosemite; Bryce Canyon

Spotlight Preferences...

Inbox

From	Subject
Kurt Russel	No escape
Avie Tevanian	Are you gonna go r
Scott Forstall	Check out this Tige
Heather Snow	Let's do this...Mon
Scott Forstall	Monday Review No
Greg Christie	Contact List for Mo
Bas Ording	Work on Server for
Bertrand Serlet	Review this Monda
Chris Cornell	Black Hole Sun
Lenny Kravitz	Where are we runn

Drafts

Sent

Trash

Junk

From: Scott Forstall
Subject: **Check out this Tiger!**
Date: December 5, 2004 8:05 PM PST
To: Steve Jobs
1 Attachment, 367 KB Save Slidesho

Spotlight: National Park

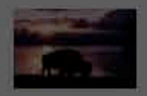
203 Results National Park

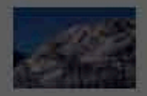
Contacts

Ahwahnee Hotel	Today	2:12 pm
Old Faithful Visitor Center	Yesterday	10:04 am
Bryce Canyon Lodge	Yesterday	8:59 am

Images

Deer
June 27 3:40 PM


Bison Sunset
June 27 3:21 PM


Roadside Rock
June 27 3:18 PM

Bison up close
June 27 11:19 AM

Geyser
June 27 10:21 AM

13 more...

Events

Mail

PDF

6 more...

Folders

Yosemite

Bryce Canyon

Yellowstone

Zion

Group by: Category, Kind, Date, People, Flat List

Sort Within Group by: Name, Date, Kind, People, Popularity

CUPERTINO

61°

TUE Feb 22

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8	9	10	11	12	13	14
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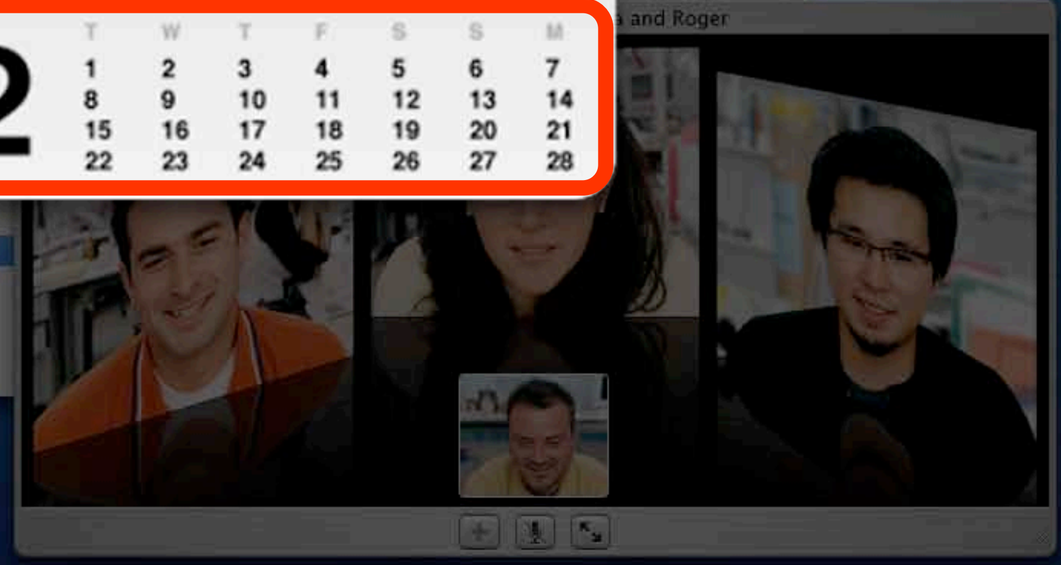
22	23	24	25	26	27	28

and Roger



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AM

LONDON

Spotlight: National Park

203 Results — National Park

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117 more…

PDF Documents

Ahwahnee Hotel -…

Bryce Canyon map

Yellowstone Park m…

Yosemite Valley hi…

Old Faithful Lodge

6 more…

Folders

Yosemite

Bryce Canyon

Yellowstone

Zion

Group by: Category, Kind, Date, People, Flat List

Sort Within Group by: Name, Date, Kind, People, Popularity

When: Any Date

Wed. MAY 18

S	M	T	W	T	F	S
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8	9	10	11	12	13	14
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22	23	24	25	26	27	28
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H: 87°
San Francisco
L: 43°

73°

WED	THU	FRI	SAT	SUN	MON
79°	89°	95°	83°	78°	56°
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Video Chat wit…

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Ahwahnee Hotel — Today

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Bryce Canyon Trip June 2004 — Yesterday

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Group by:

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French

Pommes Frites

NASDAQ 3450.05 +4.50

NYSE 14535.44 +3.98

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MSFT 18.23 −1.34

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1d 3m 6m 1y 2y 3y

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WED	THU	FRI	SAT	SUN	MON
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Speak

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1 2 3 4 5 6 7

8 9 10 11 12 13 14

15 16 17 18 19 20 21

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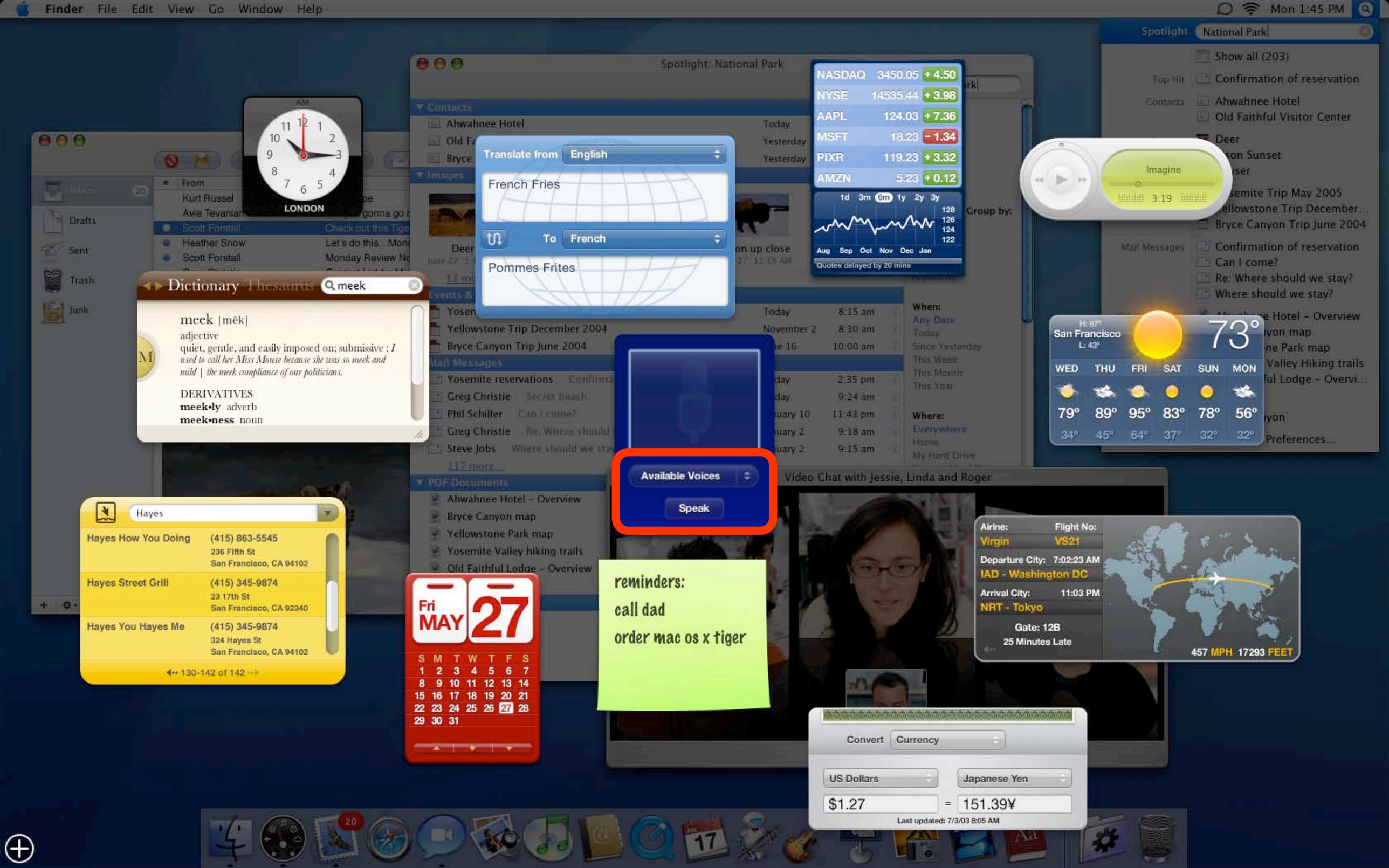
US Dollars $1.27 = Japanese Yen 151.39¥

Last updated: 7/3/03 8:05 AM


Finder File Edit View Go Window Help
Mon 1:45 PM
Spotlight National Park
Translate from English
French Fries
To French
Pommes Frites
NASDAQ 3450.05 + 4.50
NYSE 14535.44 + 3.98
AAPL 124.03 + 7.36
MSFT 18.23 - 1.34
PIXR 119.23 + 3.32
AMZN 5.23 + 0.12
Quotes delayed by 20 mins
Imagine
3:19
Dictionary Thesaurus meek
meek |mēk|
adjective
quiet, gentle, and easily imposed on; submissive : I used to call her Miss Mouse because she was so meek and mild | the meek compliance of our politicians.
DERIVATIVES
meek•ly adverb
meek•ness noun
LONDON
San Francisco
73°
WED THU FRI SAT SUN MON
79° 89° 95° 83° 78° 56°
34° 45° 64° 37° 32° 32°
Available Voices
Speak
Video Chat with Jessie, Linda and Roger
Hayes
Hayes How You Doing (415) 863-5545 236 Fifth St San Francisco, CA 94102
Hayes Street Grill (415) 345-9874 23 17th St San Francisco, CA 92340
Hayes You Hayes Me (415) 345-9874 324 Hayes St San Francisco, CA 94102
130-142 of 142
Fri MAY 27
reminders:
call dad
order mac os x tiger
Airline: Virgin
Flight No: VS21
Departure City: 7:02:23 AM
IAD - Washington DC
Arrival City: 11:03 PM
NRT - Tokyo
Gate: 12B
25 Minutes Late
457 MPH 17293 FEET
Convert Currency
US Dollars
Japanese Yen
$1.27 = 151.39¥
Last updated: 7/3/03 8:05 AM

Dashboard Widget Guidelines

- Don’t bogart the whole screen
- One widget per function
- Not Aqua applications

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Finder File Edit View Go Window Help

Mon 1:45 PM

Spotlight National Park

Show all (203)

Top Hit — Confirmation of reservation

Contacts — Ahwahnee Hotel; Old Faithful Visitor Center

Images — Deer; Bison Sunset; Geyser

Events & To Do's — Yosemite Trip May 2005; Yellowstone Trip December...; Bryce Canyon Trip June 2004

Mail Messages — Confirmation of reservation; Can I come?; Re: Where should we stay?; Where should we stay?

PDF Documents — Ahwahnee Hotel - Overview; Bryce Canyon map; Yellowstone Park map; Yosemite Valley Hiking trails; Old Faithful Lodge - Overvi...

Folders — Yosemite; Bryce Canyon

Spotlight Preferences...

Inbox

From	Subject
Kurt Russel	No escape
Avie Tevanian	Are you gonna go r
Scott Forstall	Check out this Tige
Heather Snow	Let's do this...Mon
Scott Forstall	Monday Review No
Greg Christie	Contact List for Mo
Bas Ording	Work on Server for
Bertrand Serlet	Review this Monda
Chris Cornell	Black Hole Sun
Lenny Kravitz	Where are we runn

Drafts

Sent

Trash

Junk

From: Scott Forstall
Subject: **Check out this Tiger!**
Date: December 5, 2004 8:05 PM PST
To: Steve Jobs
1 Attachment, 367 KB Save Slidesho

Spotlight: National Park

203 Results — National Park

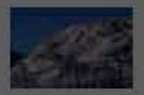
Contacts

Ahwahnee Hotel	Today	2:12 pm
Old Faithful Visitor Center	Yesterday	10:04 am
Bryce Canyon Lodge	Yesterday	8:59 am

Images

Deer
June 27, 3:40 PM

Bison Sunset
June 27, 3:21 PM


Roadside Rock
June 27, 3:18 PM

Bison up close
June 27, 11:19 AM

Geyser
June 27, 10:21 AM

13 more...

Events & To Do's

Yosemite Trip May 2005	Today	8:15 am
Yellowstone Trip December 2004	November 2	8:30 am
Bryce Canyon Trip June 2004	June 16	10:00 am

Mail Messages

Yosemite re...
Greg Chr...
Phil Schi...
Greg Ch...
Steve Jo...
117 mo...

PDF Documents

Ahwahnee Hotel - Overview
Bryce Canyon map
Yellowstone Park map
Yosemite Valley hiking trails
Old Faithful Lodge - Overview
6 more...

Folders

Yosemite
Bryce Canyon
Yellowstone
Zion

Group by:
Category
Kind
Date
People
Flat List

Sort Within Group by:
Name
Date
Kind
People
Popularity

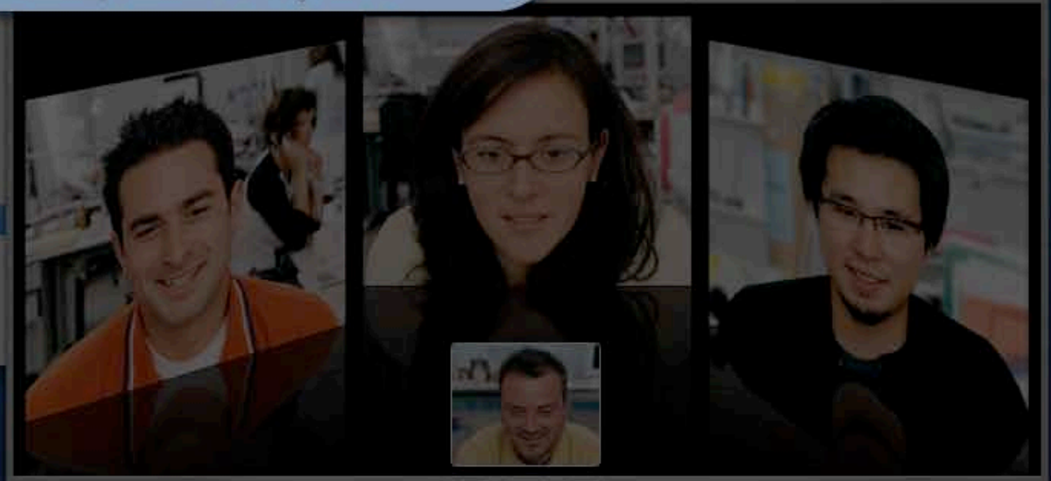
When:
Any Date
Today
Since Yesterday
This Week
This Month
This Year

Where:
Everywhere
Home
My Hard Drive

Today:

San Francisco, California Sunny and 73°

, Linda and Roger



Finder File Edit View Go Window Help

Mon 1:45 PM

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Spotlight Preferences...

Spotlight: National Park

203 Results — National Park

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- Old Faithful Visitor Center — Yesterday 10:04 am
- Bryce Canyon Lodge — Yesterday 8:59 am

Images
Deer (June 27 3:40 PM) · Bison Sunset (June 27 3:21 PM) · Roadside Rock (June 27 3:18 PM) · Bison up close (June 27 11:19 AM) · Geyser (June 27 10:21 AM)
13 more...

Events & To Do's
- Yosemite Trip May 2005 — Today 8:15 am
- Yellowstone...
- Bryce Cany...

Mail Messages
- Yosemite r...
- Greg Christ...
- Phil Schille...
- Greg Christ...
- Steve Jobs
117 more...

PDF Documents
- Ahwahnee...
- Bryce Cany...
- Yellowston...
- Yosemite V...
- Old Faithful Lodge - Overview
6 more...

Folders
- Yosemite
- Bryce Canyon
- Yellowstone
- Zion

Group by: Category, Kind, Date, People, Flat List

Sort Within Group by: Name, Date, Kind, People, Popularity

When: Any Date, Today, Since Yesterday, This Week, This Month, This Year

Where: Everywhere, Home, My Hard Drive

Inbox

From	Subject
Kurt Russel	No escape
Avie Tevanian	Are you gonna go r...
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Scott Forstall	Monday Review No...
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Bas Ording	Work on Server for...
Bertrand Serlet	Review this Monda...
Chris Cornell	Black Hole Sun
Lenny Kravitz	Where are we runn...

Drafts · Sent · Trash · Junk

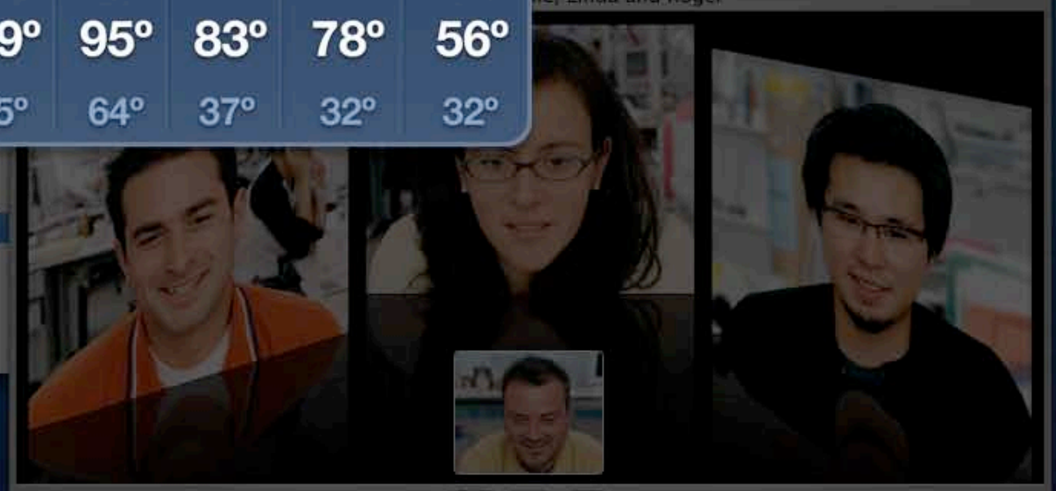
From: Scott Forstall
Subject: **Check out this Tiger!**
Date: December 5, 2004 8:05 PM PST
To: Steve Jobs
1 Attachment, 367 KB — Save — Slidesho...

H: 87°
San Francisco
L: 43°

73°

WED	THU	FRI	SAT	SUN	MON
79°	89°	95°	83°	78°	56°
84°	45°	64°	37°	32°	32°

ie, Linda and Roger



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Finder File Edit View Go Window Help

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13 more...

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Flat List

Sort Within Group by:
Name
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Kind
People
Popularity

When:
Any Date
Today
Since Yesterday
This Week
This Month
This Year

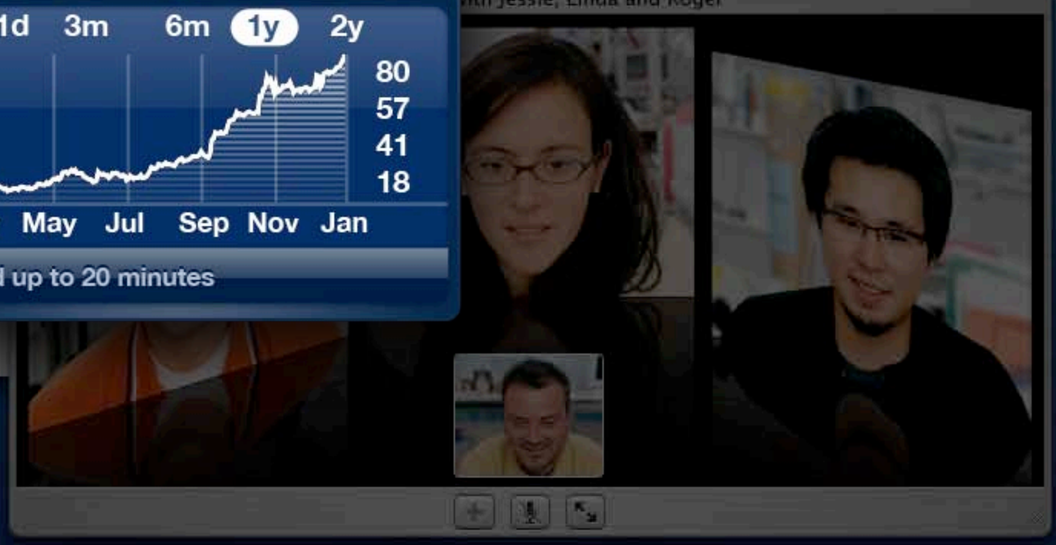
Where:
Everywhere
Home
My Hard Drive

INDU	10489.94	+62.74
COMPX	2062.41	+28.56
AAPL	76.90	+2.92
MSFT	26.28	+0.10
GOOG	195.62	+5.28
AMZN	43.22	+1.00

1d 3m 6m 1y 2y

Delayed up to 20 minutes

ith Jessie, Linda and Roger



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Any Date
Today
Since Yesterday
This Week
This Month
This Year

Where:
Everywhere
Home
My Hard Drive

Quotes:

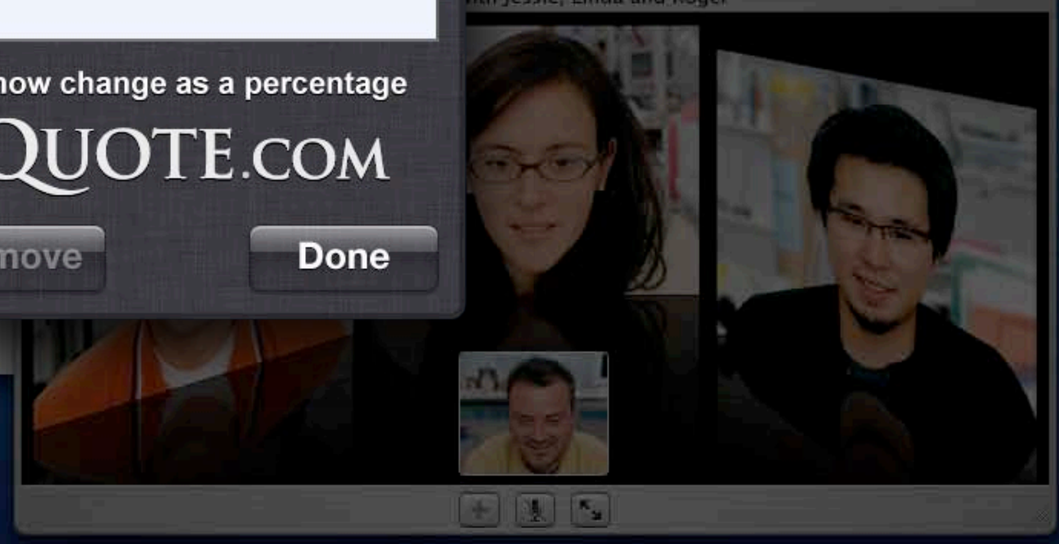
INDU	
COMPX	
AAPL	Apple Computer
MSFT	Microsoft Corporat...
GOOG	Google Inc.
AMZN	Amazon.com, Inc.

Show change as a percentage

QUOTE.COM

Remove Done

with Jessie, Linda and Roger



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- Communicate key info quickly
- Baby’s got back
- Make it beautiful

Finder File Edit View Go Window Help
Mon 1:45 PM
Spotlight National Park
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Confirmation of reservation
Ahwahnee Hotel
Old Faithful Visitor Center
Deer
Bryce Canyon Trip June 2004
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MSFT 18.23 - 1.34
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8,675,309
Apple Computer Inc.
main 1-800-MY-APPLE
work 1 Infinite Loop
Cupertino CA 95014
United States
Hayes
Hayes How You Doing (415) 863-5545
236 Fifth St
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Build Exceptional Dashboard Widgets

#8: Pimp Your Rare

#8: Pimp Your Ride

#7: Make Room for Everyone

Accessibility

- Zooming
- White on black display
- Enhanced screen contrast
- Grayscale only
- Flash Screen
- Mouse Keys / Slow Keys / Sticky Keys
- Scalable mouse cursor

VoiceOver

- Screen reader for blind and visually impaired users
- Built-in, not bolted-on
- Installed on every Tiger machine
- Available everywhere
  - installation and setup, login, desktop

VoiceOver: Your Move

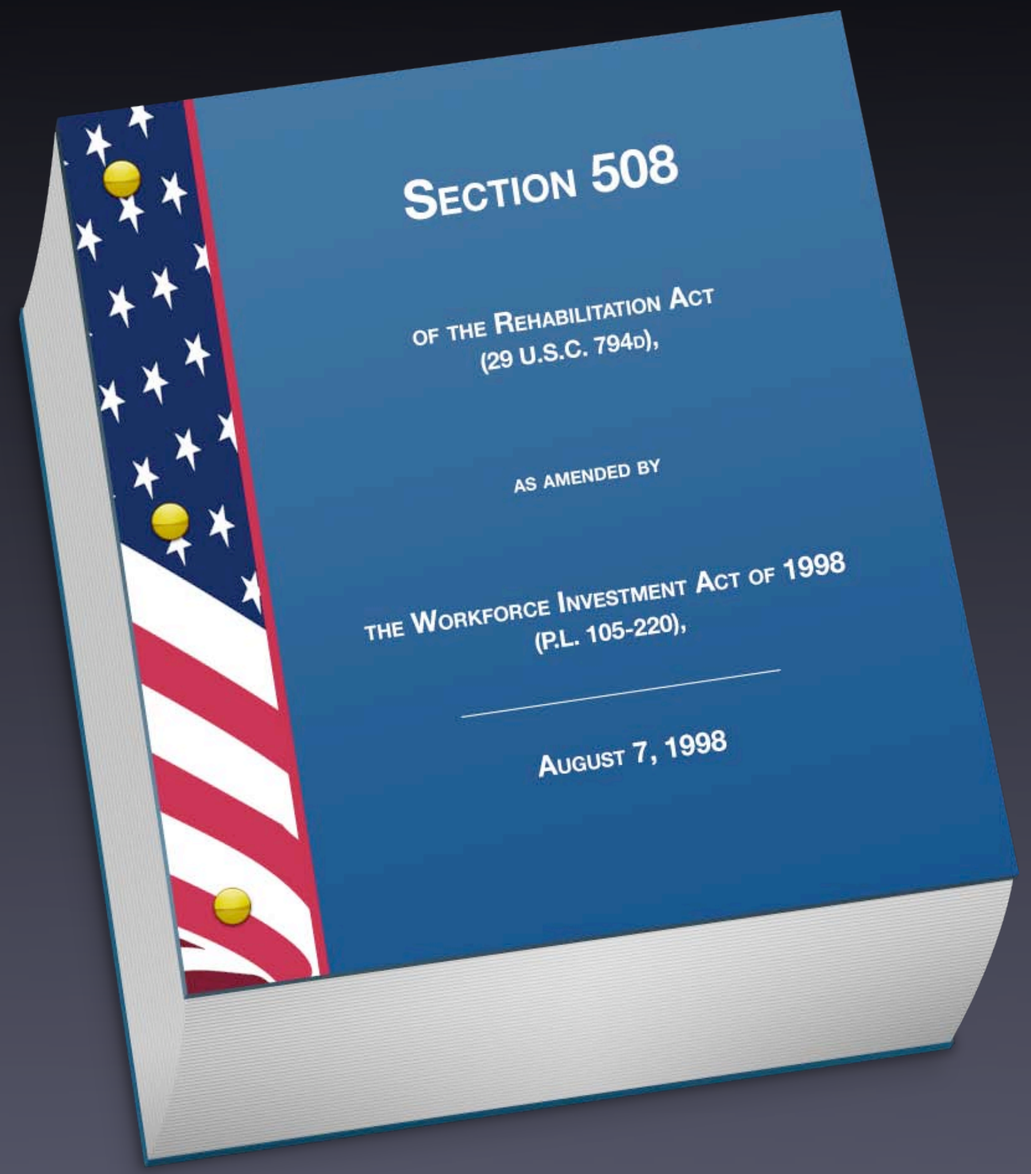
- Support Accessibility APIs
- Full keyboard access
- Keyboard alternatives to mouse operations
- Tools to help:

Accessibility Verifier

Accessibility Inspector

VoiceOver

The Stick


SECTION 508
OF THE REHABILITATION ACT
(29 U.S.C. 794D),
AS AMENDED BY
THE WORKFORCE INVESTMENT ACT OF 1998
(P.L. 105-220),
AUGUST 7, 1998

Demo

Eric Seymour

Manager, Voice Over

#AccessibilityandVEveryone
#AccessibilityandVEveryone

#7: Make Room for Everyone

#7: Make #Body for Everyone

Demo

Fun #6: Joyride
and Compelling

5 Best Practices for User Features

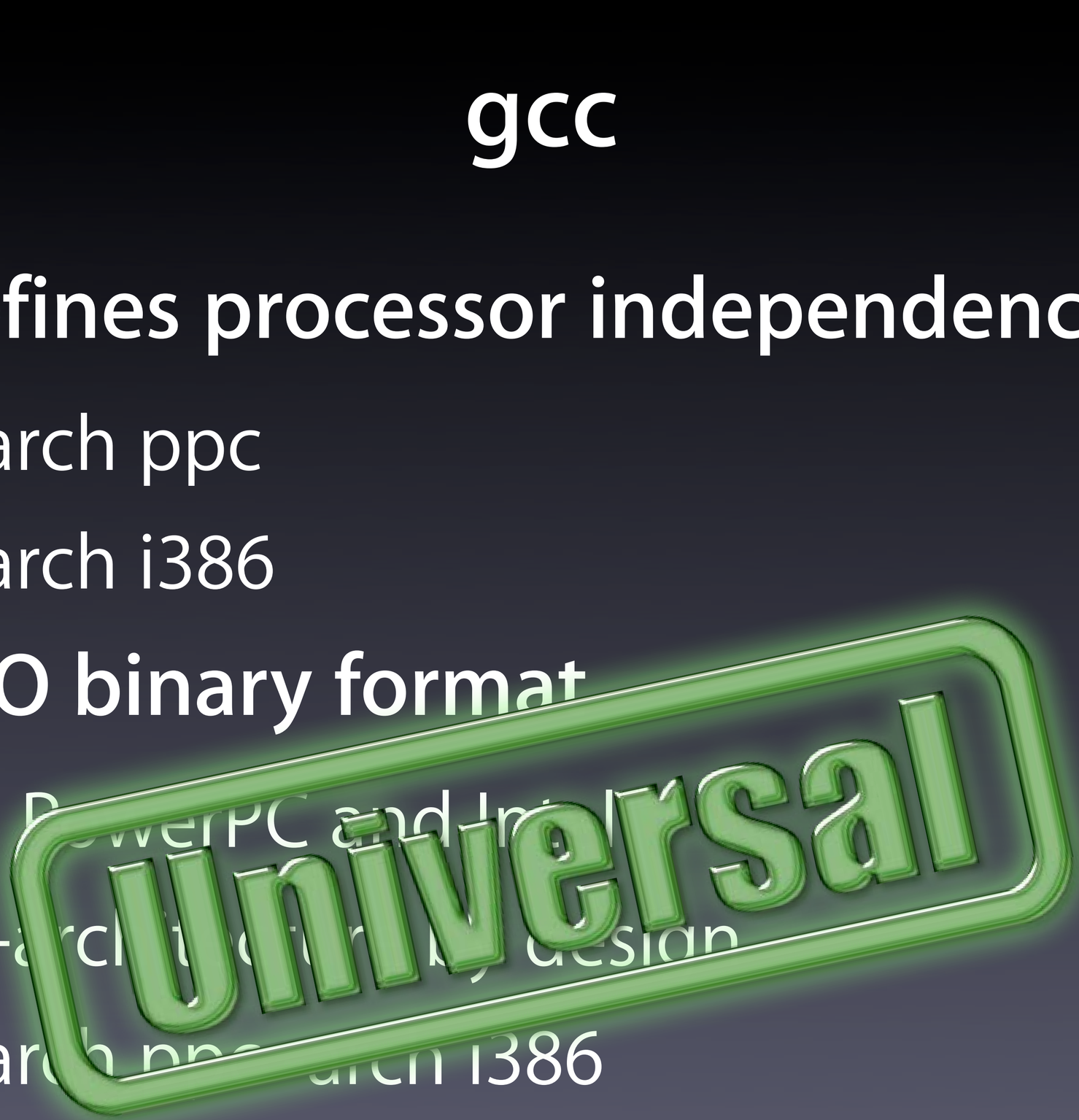
5 Best Practices for Implementation

#5: Tool it Right

Type of Project	Making Universal
1. Scripts and Java projects	
2. Unix projects	Universal Compiler ?
3. Cocoa apps	
4. Carbon apps	

gcc

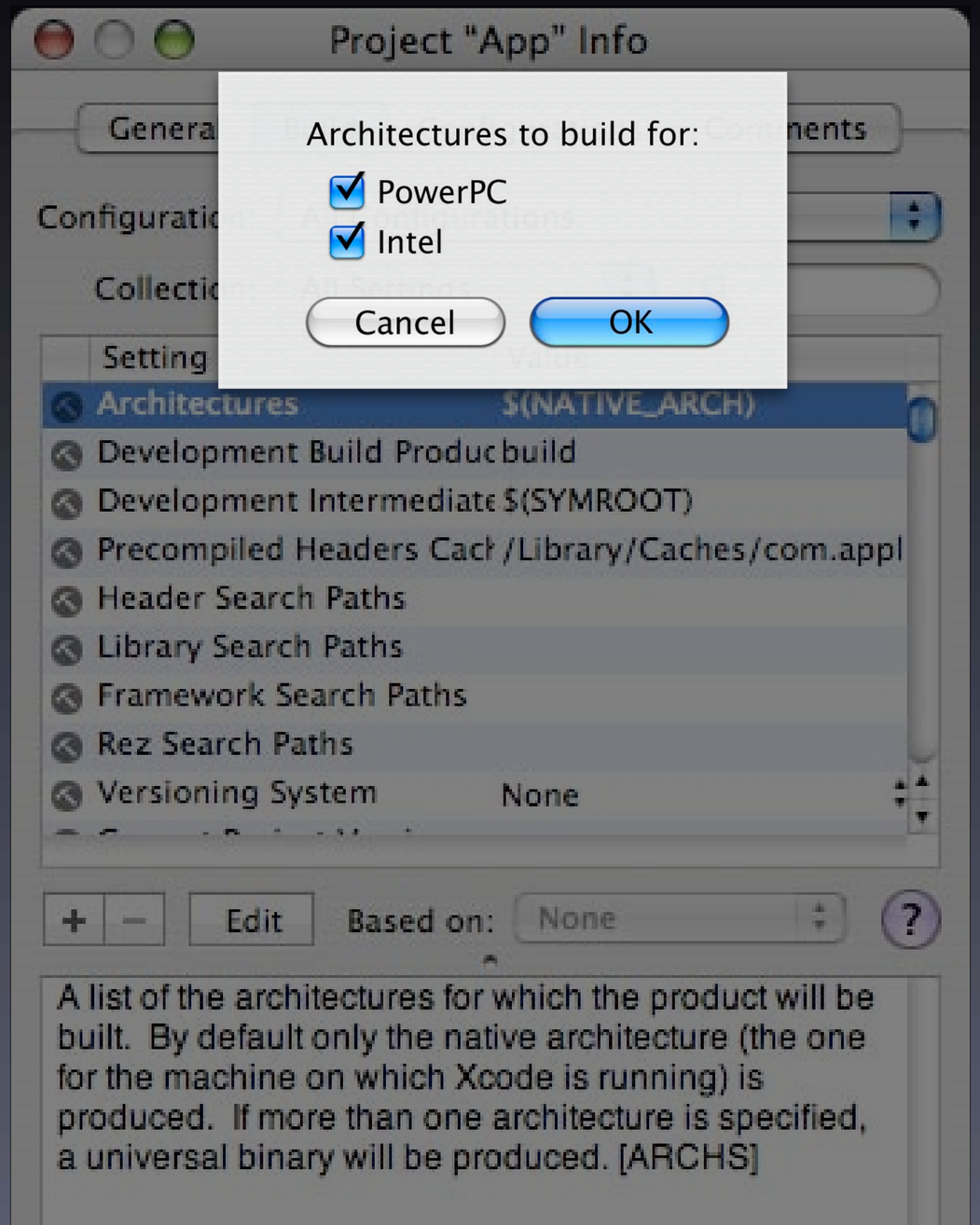
- gcc defines processor independence
  - gcc -arch ppc
  - gcc -arch i386
- Mach-O binary format
  - Glues PowerPC and Intel
  - Multi-architecture by design
  - gcc -arch ppc -arch i386



Could it be Easier?

Xcode

Color palette
Transparency Effects
Measuring tools
• Text spacing
• Alignment
• Grid tool
Writing Tools
PROJECT: APPLICATION.APP
ARCHITECT: XCODE
#1


Project "App" Info
Genera
nents
Configuratio
Collectio
Setting
Architectures $(NATIVE_ARCH)
Development Build Produc build
Development Intermediate $(SYMROOT)
Precompiled Headers Cach /Library/Caches/com.appl
Header Search Paths
Library Search Paths
Framework Search Paths
Rez Search Paths
Versioning System None
Edit
Based on:
None
A list of the architectures for which the product will be built. By default only the native architecture (the one for the machine on which Xcode is running) is produced. If more than one architecture is specified, a universal binary will be produced. [ARCHS]
Architectures to build for:
PowerPC
Intel
Cancel
OK

Not Just Universal Binary:

Universal Application

PDF
Universal
NIB
TIFF

G5

intel

Use #5 Tool at Right

#4: Open it up

Fundamental Shift in the Software Industry

File Edit Help

11:51 PM Appearance

Installer Logs

1 item, 21.2 MB available

Mac OS 8.5

CKS|Partners

9 items, 118.7 MB available

Name	Date Modified	Size	Kind
'	Thu, Aug 6, 1998, 10:06 PM	–	folder
Applications	Today, 10:25 PM	–	folder
Fireworks	Today, 10:42 PM	–	folder
Multisession Mounter 2.05	Fri, Aug 19, 1994, 12:55 AM	48 K	control panel
Netscape Navigator™ Folder	Thu, Jul 16, 1998, 2:56 AM	–	folder
Picture 1	Thu, Aug 6, 1998, 10:47 PM	648 K	SimpleText picture
Picture 2	Fri, Aug 7, 1998, 12:05 AM	16 K	Photoshop® PICT file
System Folder	Today, 10:21 PM	–	folder
Utilities	Today, 10:26 PM	–	folder

cratch

3 MB available

Date Modified
Wed, Jul 29, 1998, 10:25 PM
Tue, Aug 4, 1998, 9:54 PM
Wed, Jul 29, 1998, 11:11 PM
Wed, Jul 29, 1998, 11:36 PM
Wed, Jul 29, 1998, 10:19 PM
Wed, Jul 29, 1998, 10:24 PM
Wed, Jul 29, 1998, 10:26 PM
Wed, Aug 5, 1998, 11:22 PM
Today, 11:48 PM
Today, 11:50 PM
Today, 11:51 PM
Mon, Aug 3, 1998, 4:45 AM
Wed, Jul 29, 1998, 10:21 PM

MacTech

Scratch

Adobe Photoshop® 4.0.1 alias

CKS|Partners

Projects

Courtyard 5m

-ROM Software

ey Printer Stuf

Big Apple 2

t QuickTime Pro

Big Apple

isk Copy 6.1.2

GifBuilder

iMac badge

Trash

Netscape Navig

Network Browser alias

Appearance

Themes | Appearance | Fonts | Desktop | Sound | Options

Patterns:

- Bondi Extra Dark
- Bubbles Bondi
- Azul Light
- Bondi Extra Dark
- Mac OS Default
- French Blue Dark
- Rio Azul
- Sunny

Pattern Bondi Extra Dark
16 X 16, 126 bytes

Picture: UFO 2
1024 X 768, 96K

1.1b2c2, Copyright 1998 Santiccioli, Lising, & Spreenberg

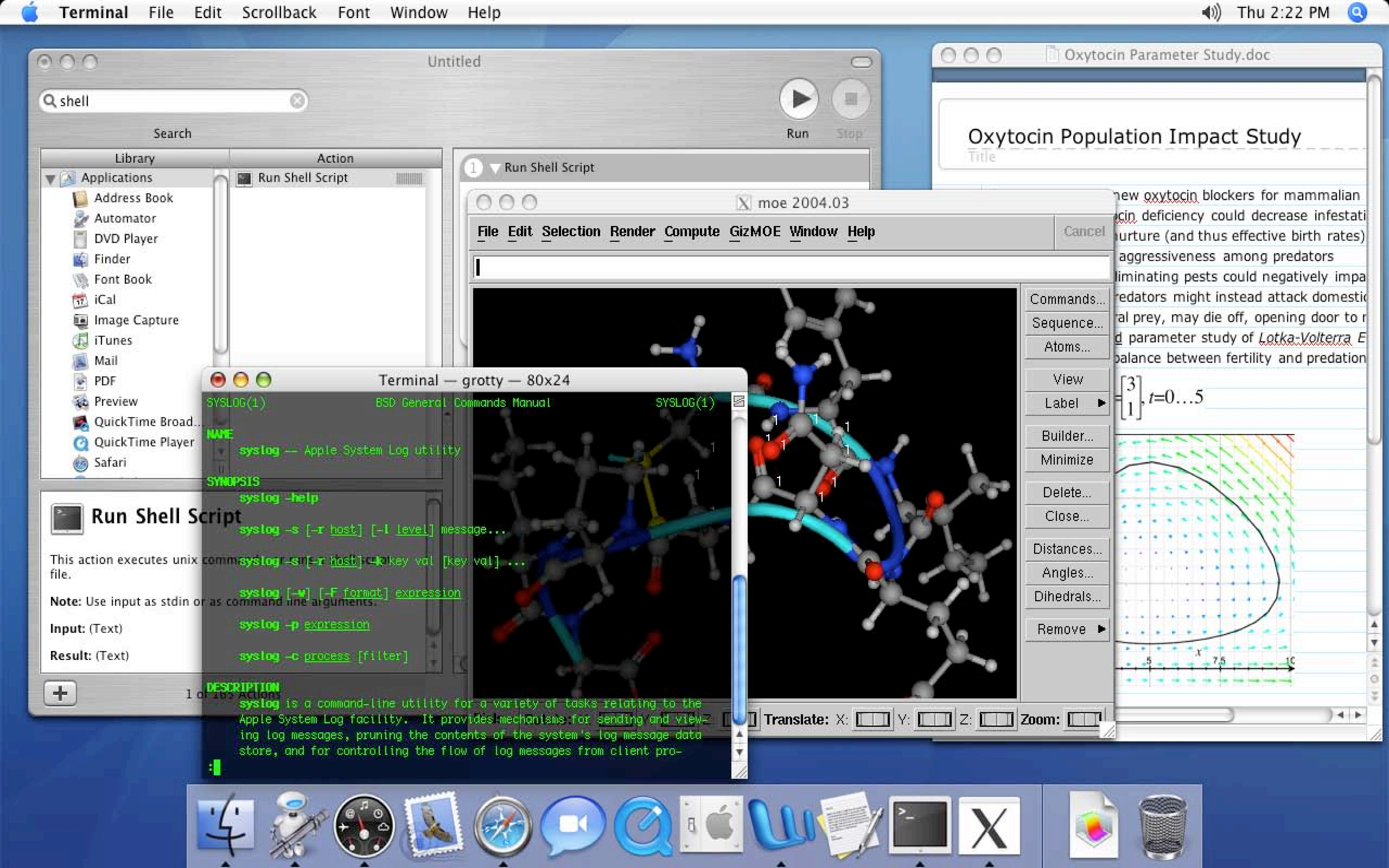
Picture:

Remove Picture

Position Automatically

The pattern may be covered by the picture.

Set Desktop

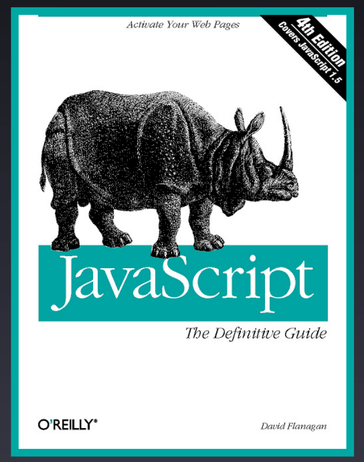

Terminal File Edit Scrollback Font Window Help
Thu 2:22 PM
Untitled
shell
Search
Run
Stop
Library
Action
Applications
Address Book
Automator
DVD Player
Finder
Font Book
iCal
Image Capture
iTunes
Mail
PDF
Preview
QuickTime Broad...
QuickTime Player
Safari
Run Shell Script
1 Run Shell Script
Run Shell Script
This action executes unix comm
file.
Note: Use input as stdin or as command line arguments.
Input: (Text)
Result: (Text)
moe 2004.03
File Edit Selection Render Compute GizMOE Window Help
Cancel
Commands...
Sequence...
Atoms...
View
Label
Builder...
Minimize
Delete...
Close...
Distances...
Angles...
Dihedrals...
Remove
Translate: X: Y: Z: Zoom:
Terminal — grotty — 80x24
SYSLOG(1) BSD General Commands Manual SYSLOG(1)
NAME
syslog -- Apple System Log utility
SYNOPSIS
syslog -help
syslog -s [-r host] [-l level] message...
syslog -s [-r host] -k key val [key val] ...
syslog [-w] [-F format] expression
syslog -p expression
syslog -c process [filter]
DESCRIPTION
syslog is a command-line utility for a variety of tasks relating to the
Apple System Log facility. It provides mechanisms for sending and view-
ing log messages, pruning the contents of the system's log message data
store, and for controlling the flow of log messages from client pro-
Oxytocin Parameter Study.doc
Oxytocin Population Impact Study
Title
new oxytocin blockers for mammalian
cin deficiency could decrease infestati
urture (and thus effective birth rates)
aggressiveness among predators
liminating pests could negatively impa
redators might instead attack domestic
al prey, may die off, opening door to r
d parameter study of Lotka-Volterra E
balance between fertility and predation
t=0…5
x
5
7.5
10

Open

- **Open standards**
  - Avoid reinventing the wheel
  - Interoperability
- **Open source**
  - Security
  - Reliability
  - Focus where you add value

Open Source Components in Tiger

SQLite



SQLite

Open Source SQL Database

Very light-weight, fast

Mail, Safari RSS, . . .

Takes care of byte order

Universal

WebCore

WebCore

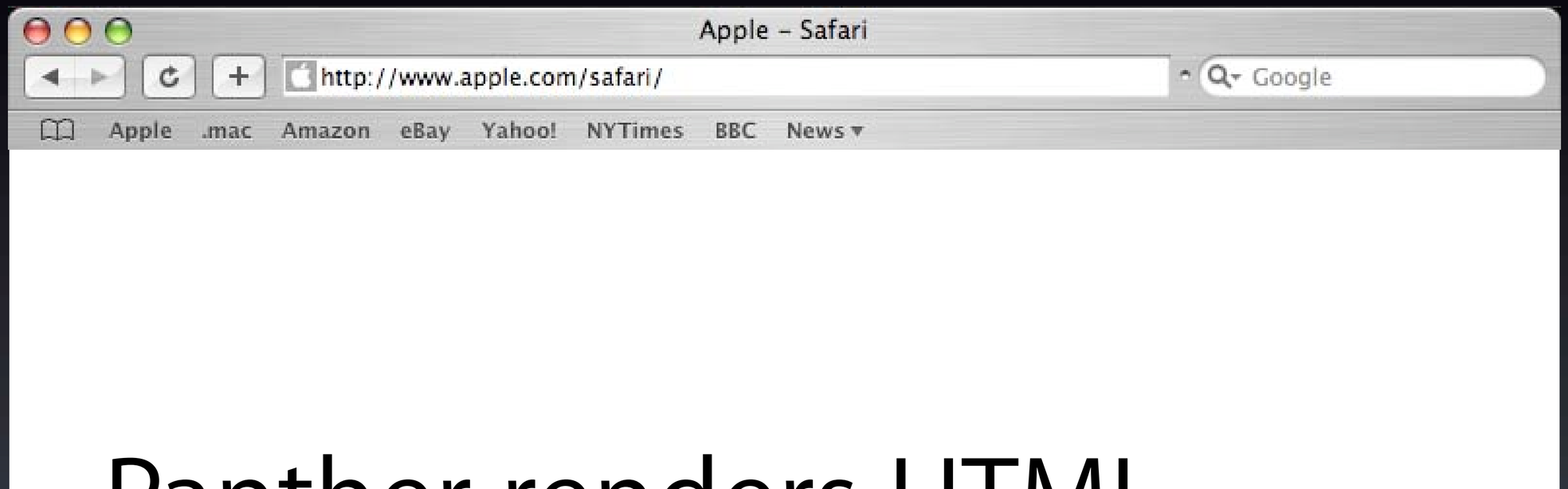
Open Source HTML Rendering Engine

Powers Safari

Next gen. rendering engine

Repository now live

OO wrapper WebKit now open

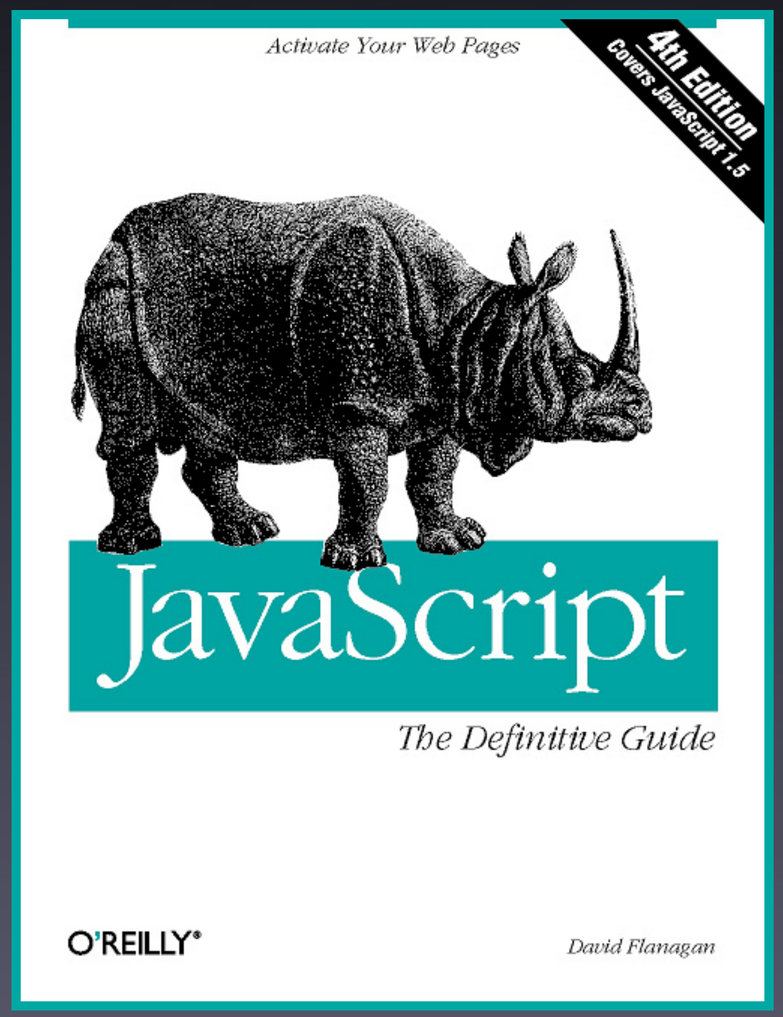


Panther renders HTML...

Tiger edits it too

JavaScript

Web Standard for Scripted Behavior



Safari

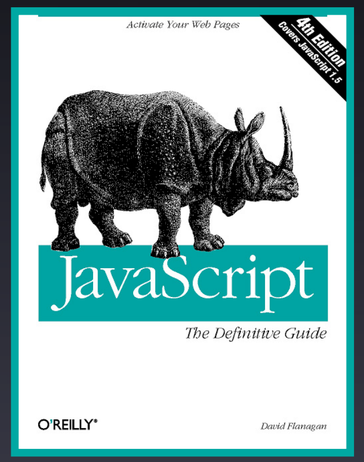
Open Source implementation

Dashboard widgets

Universal

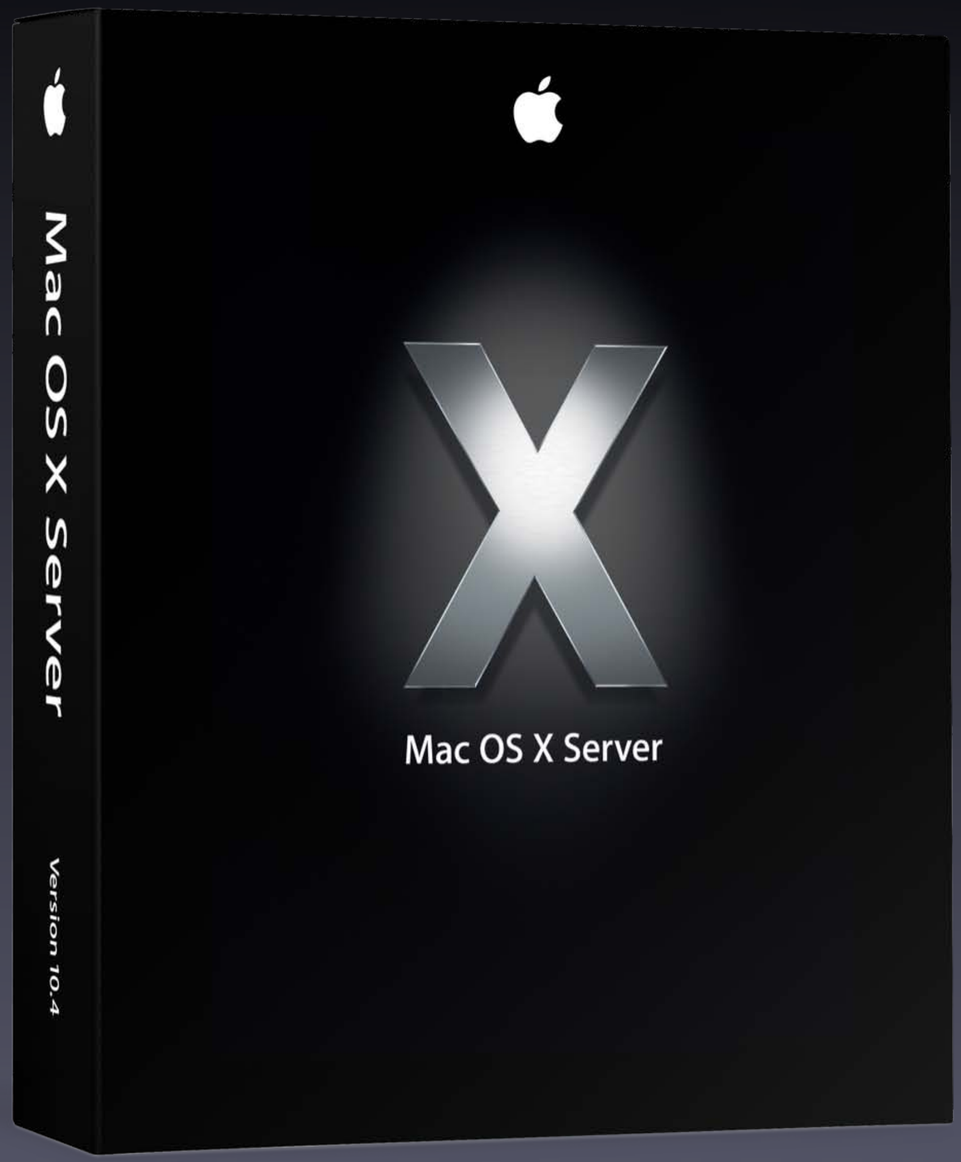
Open Source Components

SQLite



+ 100 open source projects
in Tiger or Tiger Server

Open Source Made Easy



Use Unix Open Source Projects

- Choose from rich collection
  - Commands
  - Libraries
- Download
- Recompile
- Share your improvements

Use Open Standards and Open Source

#4 Open it up

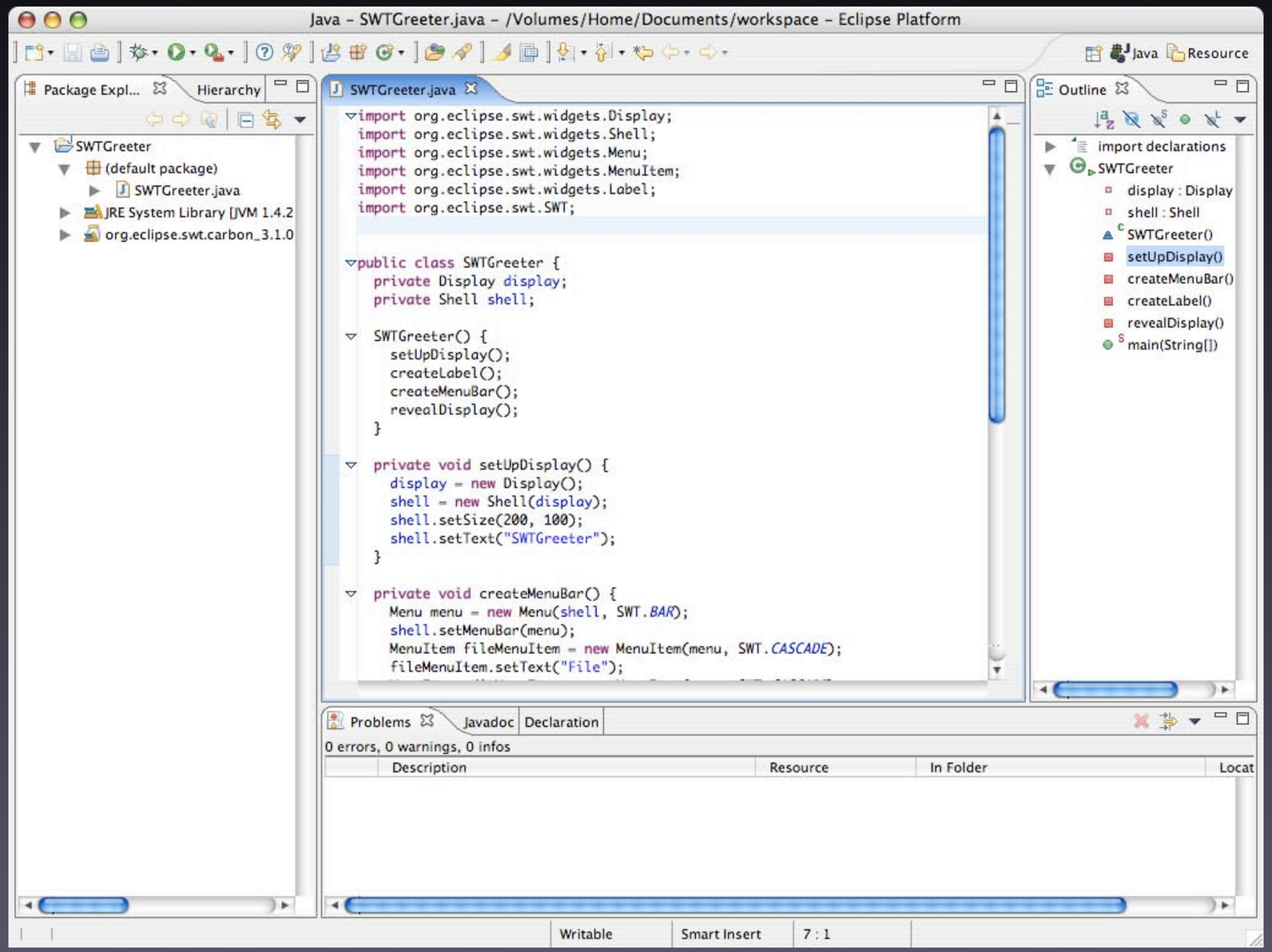
#3: Build from Parts

Object Oriented: Java

Java

- **Mac OS platform of choice**
  - Impedance match with Unix
  - Full Aqua citizen
    - Java1.4.2 and Java 1.5
- **Also on Apple Development System**

Eclipse


Java - SWTGreeter.java - /Volumes/Home/Documents/workspace - Eclipse Platform
Java
Resource
Package Expl...
Hierarchy
SWTGreeter
(default package)
SWTGreeter.java
JRE System Library [JVM 1.4.2
org.eclipse.swt.carbon_3.1.0
SWTGreeter.java
import org.eclipse.swt.widgets.Display;
import org.eclipse.swt.widgets.Shell;
import org.eclipse.swt.widgets.Menu;
import org.eclipse.swt.widgets.MenuItem;
import org.eclipse.swt.widgets.Label;
import org.eclipse.swt.SWT;
public class SWTGreeter {
private Display display;
private Shell shell;
SWTGreeter() {
setUpDisplay();
createLabel();
createMenuBar();
revealDisplay();
}
private void setUpDisplay() {
display = new Display();
shell = new Shell(display);
shell.setSize(200, 100);
shell.setText("SWTGreeter");
}
private void createMenuBar() {
Menu menu = new Menu(shell, SWT.BAR);
shell.setMenuBar(menu);
MenuItem fileMenuItem = new MenuItem(menu, SWT.CASCADE);
fileMenuItem.setText("File");
Outline
import declarations
SWTGreeter
display : Display
shell : Shell
SWTGreeter()
setUpDisplay()
createMenuBar()
createLabel()
revealDisplay()
main(String[])
Problems
Javadoc
Declaration
0 errors, 0 warnings, 0 infos
Description
Resource
In Folder
Locat
Writable
Smart Insert
7 : 1

Java Usage

- **Ideal**
  - Servers
  - IS custom apps
  - Cross-OS portability
- **Not ideal to fully leverage Mac OS X**

Object Oriented: Cocoa

Philosophy

- **Minimize app code**
  - Automatic behaviors
  - Provide rich toolbox
- **Highly extensible / customizable**
  - Subclassable
  - “Exo” class additions
  - Delegation

Objective C

Classes - methods

C

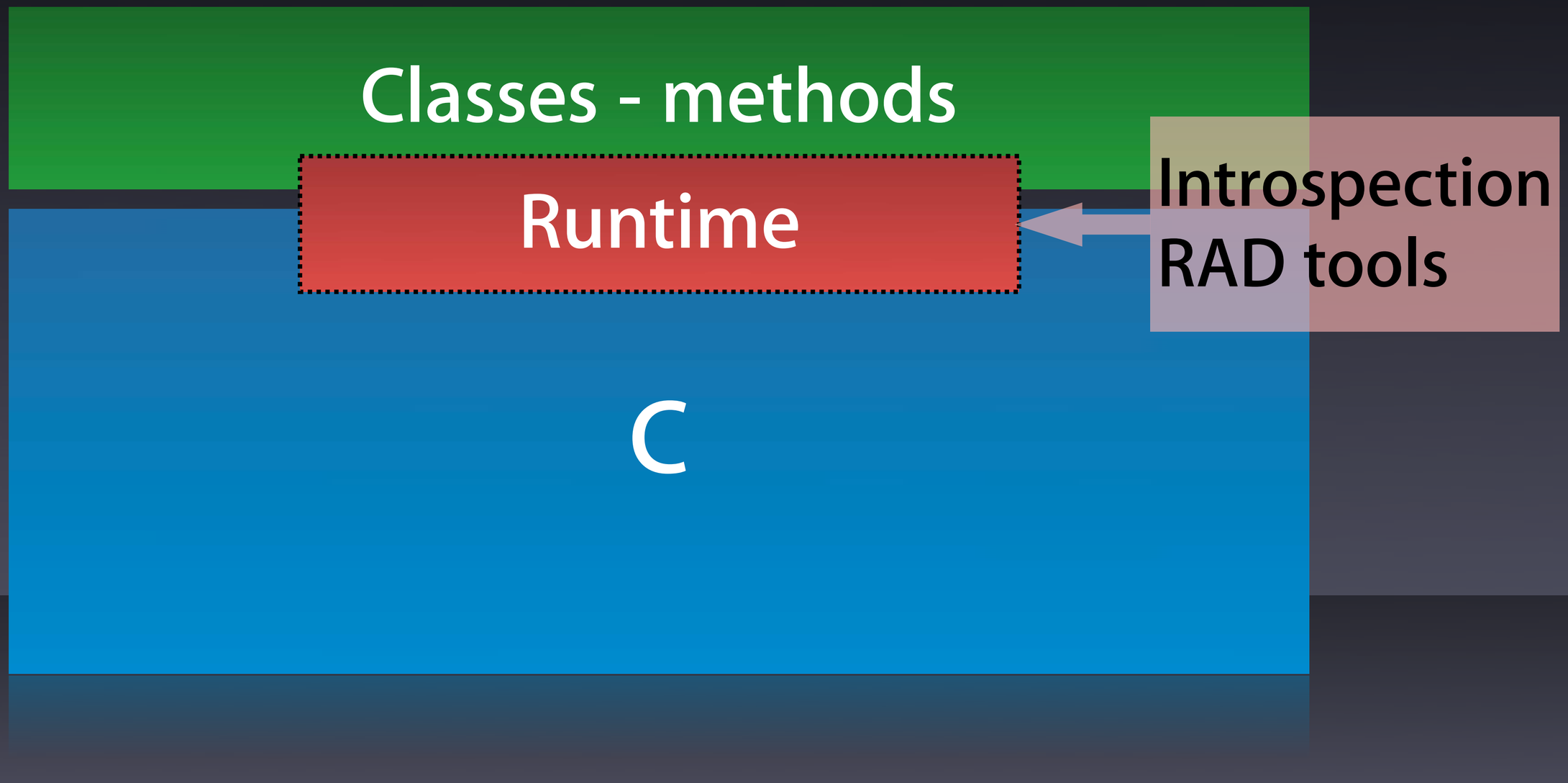
Objective C

Classes - methods

C

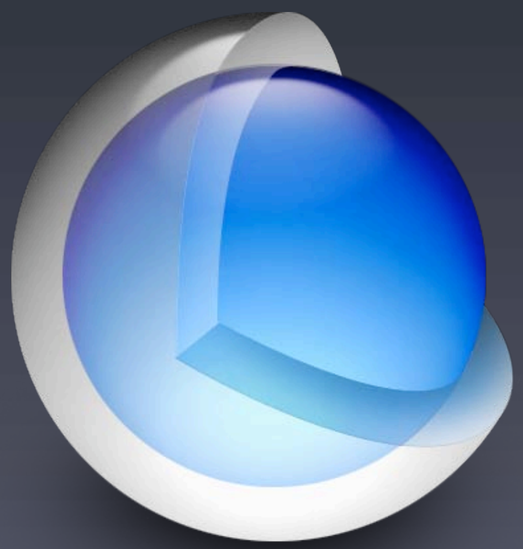
C++

Objective C



Cocoa Frameworks

- Consistent, orthogonal APIs
- Many basic sub-systems
  - Views, controls, panels, …
  - Document architecture
  - Scripting architecture
  - Text



New in Tiger: Core Data

OO API for Persistent Stores

On top of SQLite or XML files

Editing, validation, undo, ...

Provides MVC model

Modeling tools — less code

New in Tiger: Sync Services

OO API for Data Synchronization

Fine control

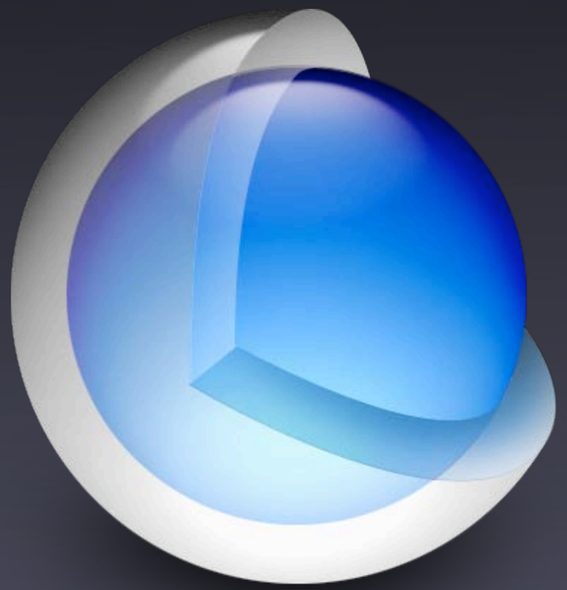
Conflict handling

System data types

Highly customizable

New in Tiger: Core Image

Accelerated Graphics made Easy



Many image units – extensible

Compose effects

Realtime, dynamic compilation

GPU and CPU independent

New in Tiger: QTKit

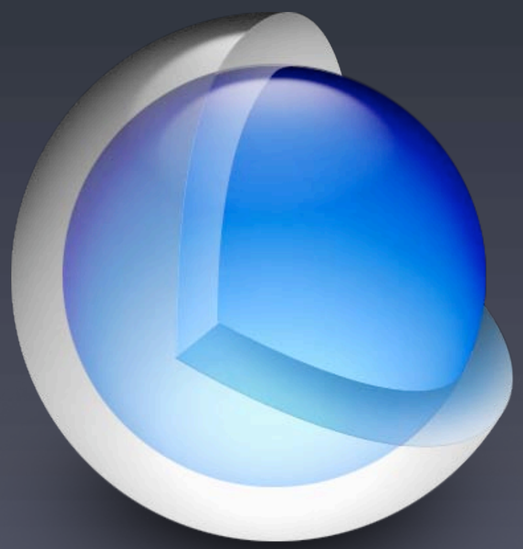
OO APIs for QuickTime

Playback, editing, export…

Powerful

Yet simple

QT player in your app!



Apple's Secret for New Apps

Endianness

- **Cocoa handles byte order for you**
  - Unicode
  - Serialization
- Minor tweaks and recompile

Demo

Ali Ozer

Senior Manager, Cocoa

Unit 3: Object Orientation

#2: Carbon? Supe It Up

Adobe Creative Suite 2 Premium
Adobe
MATHEMATICA 5.1
WOLFRAM RESEARCH
Quicken
PERSONAL FINANCE SOFTWARE
for Mac 2005
Intuit
FileMaker Pro 7
QuarkXPress 6.5
FOR MAC OS
QUARK
Maya 6
Maya Unlimited
Alias
roxio
TOAST 6
TITANIUM
Microsoft
Mac
Office:mac
Microsoft
Office:mac
2004
STANDARD EDITION

Carbon Evolution

Carbonize

Carbon events

Perfect

HIView

Integrate

HIObject

Tune

More controls

Improved controls

HIShape

Continue to Perfect

IB integration

HIArchive

Make Universal

Universal Resources

- **Standard UI resources:** DLOG, DITL, CNTL, ...
  - Automatic
  - Best: use Interface Builder
- **Custom resources**
  - Tweak by hand
  - Use “flippers”

Universal Document Formats

- Already cross platform?
- In-memory structures made persistent
- Handle endianness
  - Tweak by hand
  - Best: use XML or HIArchive

Making Universal

Step 1: Tweak

Step 2: Recompile => gcc / Xcode

Transition to Xcode: Easier

- Flexible organization of sources
- Flexible configurations
- Improved precompiled headers
- Debug actions and watchpoints

Making Universal

Step 1: Switch to gcc / Xcode

Step 2: Tweak

Step 3: Recompile

7151
PRO MOD
NX
Ron Lummus
RACING
MAGNAFLOW
Performance EXHAUST
RANCHO
ERCO

#1: Pedal to the Metal

200 New Features

Yet Faster

Each Release, Retune

- **Overall system**
  - Stingy with resources (lazy)
  - Boot time, threading, …
- **Frameworks**
  - Leveraged
  - Graphics, text, drag and drop, …
- **Tools – gcc**

Each Release, Retune

- **Overall system**
  - More lazy
  - Boot time, threading, …
- **Frameworks**
  - Leveraged
  - Graphics, text, drag and drop, …
- **Tools – gcc**

Automatic Speedup for your App

More Speed?

Measure and Optimize

- **Perf tools**
  - Shark, Sampler for hot spots
  - Memory tools
  - Drawing tools (Quartz Debug, OpenGL Profiler)
- **Present on Apple Development System**

Fine Tuning Hot Spots

- Best: algorithm
- Last resort: write assembly
  - AltiVec / SSE
- Try gcc new autovectorization
  - AltiVec / SSE
- Best: use Accelerate framework

Accelerate Framework

Vector Math

exp()

pow()

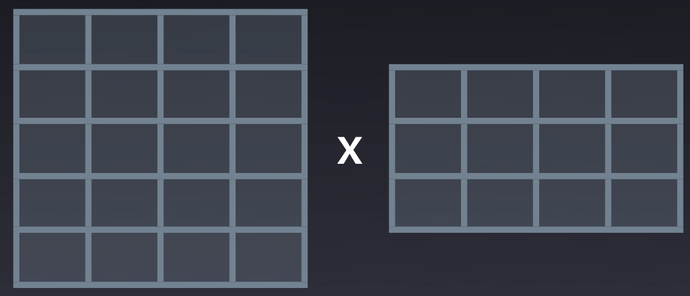
sin()

atan2()

Large Integers

```
19856295712561925724
*   46915723501062356
```

Linear Algebra



Signal Processing

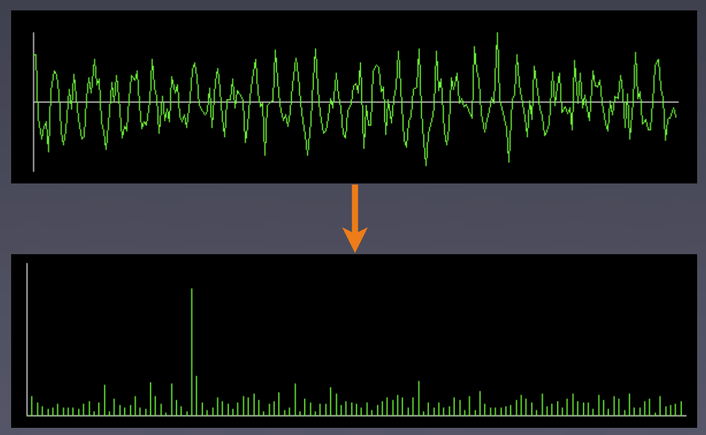
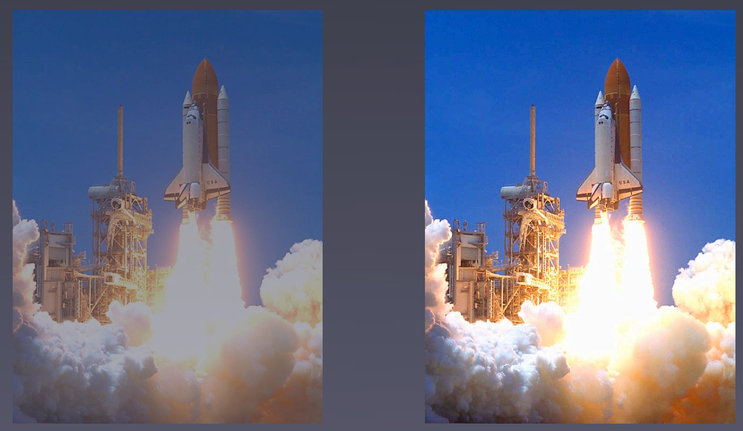


Image Processing



Accelerate Framework

- Optimized for PPC: AltiVec
- Optimized for Intel: SSE
- Committed
  - Fastest
  - Richer

W217 ADN

Best Practices for Implementation

Tweaks?
Endians?

NAXOS
AudioBooks

3 COMPACT DISCS

CLASSIC FICTION

DIGITAL
NA307712

JONATHAN SWIFT

Gulliver's Travels

READ BY NEVILLE JASON

CLASSIC LITERATURE WITH CLASSICAL MUSIC

NAXOS
AudioBooks

3 COMPACT DISCS

CLASSIC FICTION

DIGITAL
NA307712

JONATHAN SWIFT

Gulliver's Travels

READ BY NEVILLE JASON

CLASSIC LITERATURE WITH CLASSICAL MUSIC

Simon Patience

Senior Director, Core OS

Finder File Edit View Go Window Help

Mon 1:45 PM

Apple

http://www.apple.com/

Apple

Store | iPod + iTunes | .Mac

Hot News | Switch | Hardware | Software | Made4Mac | Educati

Source

Library

Last Roll

Last 12 Months

The Relay

Sat 1152... | Sat 1153... | Sat 1155... | Sat 1155... | Sat 1158...

Video Chat with Jessi, Linda and Roger

Apple Comput

00:25:50

Sat 21

Sun 12

Text Animations

Getting Started

untitled

Style | List | Objects | Wrap | Inspector | Media | Colors | Fonts

SUMMER EDITION

HNSON *family*

MA EODEM MODO TYPI QUI NUNC NOBIS VIDENTUR FIA

Et Quint Deci Eodem

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse.

Sed tellus suscipit in aliquam

Leo vitae diam est luctus, ornare massa mauris urna, vitae sodales et ut facilisis dignissim, imperdiet in diam, quis que ad ipiscing nec posuere feugiat ante velit. Viva mus leo quisque. Neque mi vitae, nulla cras diam fusce

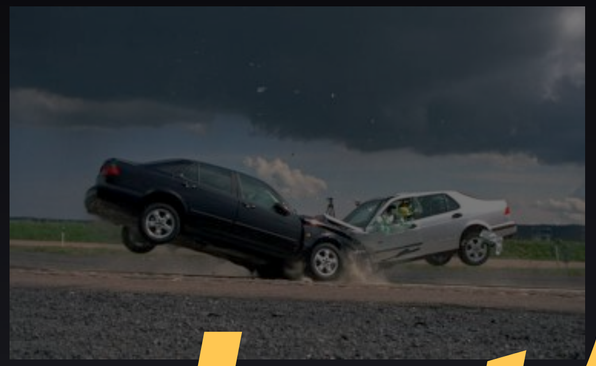
Dolor at venenatis in, ac in quam purus diam mauris massa, dolor leo vehicula at commodo. Turpis condimentum varius aliquet accumsan, sit nullam eget in turpis augue, vel tristique, fusce metus id consequat orci penatibus. Ipsum vehicula

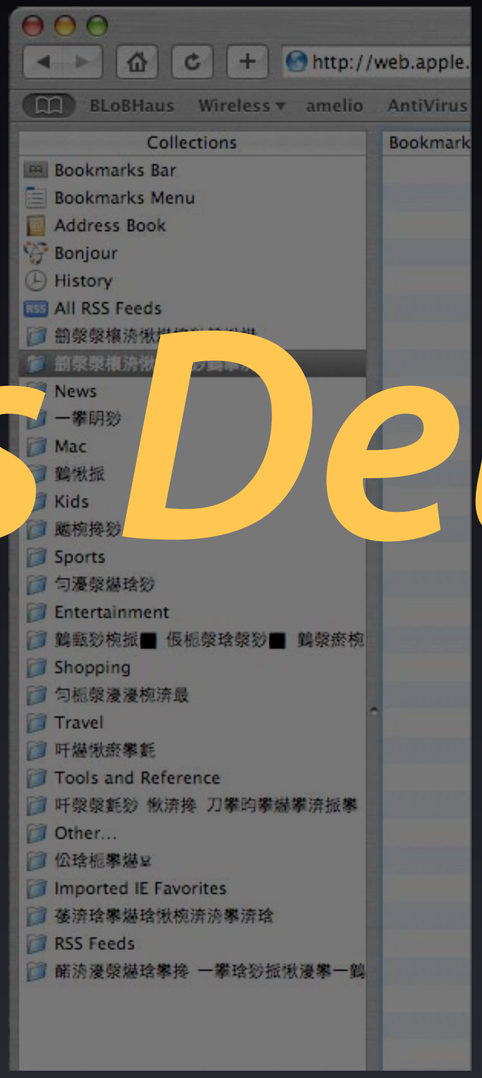
Augue fugiat

Fusce lectus proin, neque cr as eget, integer quam facilisi a adipiscing posuere. Imper diet sem sapien. Pretium natoque nibh, tristique odio eligendi odio molestie mas sa. Volutpat justo fringilla rut rum augue. Lao reet ulla mcorper molestie.

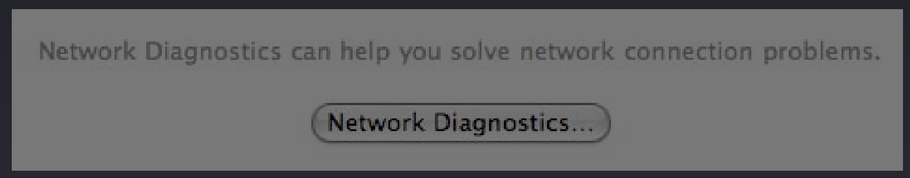
125% | Page 1 of 1

Our Experience





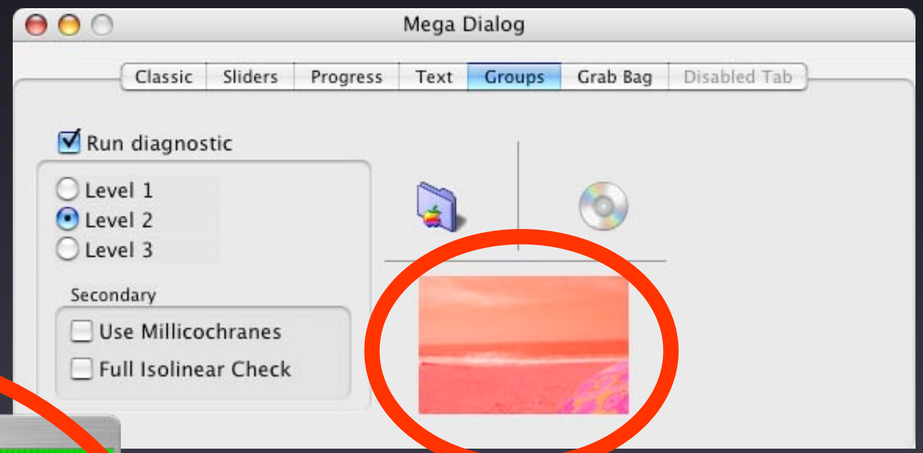
Let's Debug!



Different Architectures

Endianness

Mega Dialog
Classic
Sliders
Progress
Text
Groups
Grab Bag
Disabled Tab
Below
Ab...
Menus, too!
Downward
On Right
On Left
Custom Control Definition


Mega Dialog
Classic
Sliders
Progress
Text
Groups
Grab Bag
Disabled Tab
Run diagnostic
Level 1
Level 2
Level 3
Secondary
Use Millicochranes
Full Isolinear Check

Video Chat with Tim Swihart

Endianness aka Byte Order

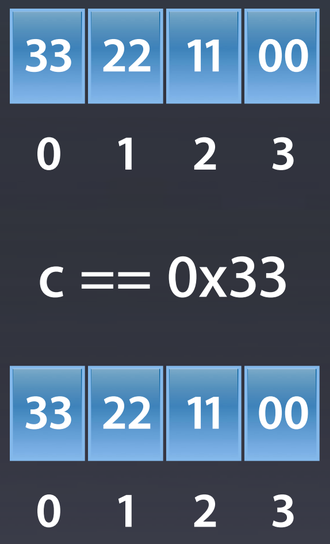
	Big Endian (PPC)	Pick a Number	Little Endian (Intel)
Integer	33 22 11 00 0 1 2 3	0x33221100	00 11 22 33 0 1 2 3
Short	11 00 0 1	0x1100	00 11 0 1
2 Shorts	33 22 11 00 0 1 2 3	0x3322 0x1100	22 33 00 11 0 1 2 3

Endianness

```
int a = 0x33221100;
char *b, c;

    b = &a;
    c = *b;
```

Big Endian



c == 0x33

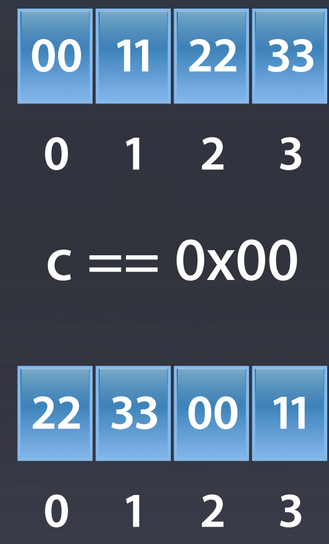
b == 0x33221100

```
struct foo {
        short lo;
        short hi;
};

struct foo a =
 { 0x3322, 0x1100 };
int b;

b = *(int *)&a;
```

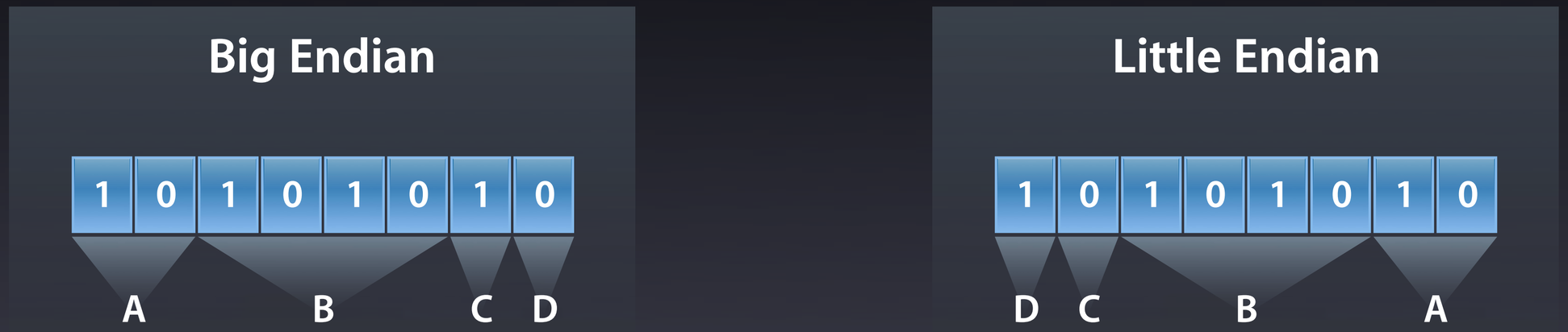
Little Endian



c == 0x00

b == 0x11003322

Bit Fields



Interoperability Risk!!

Divide by Zero

```
Command: Mail
Path:    /Applications/Mail.app/Contents/MacOS/Mail
Parent:  WindowServer [100]

Version:       2.0.1 (730)
Build Version: 7
Project Name:  MailViewer
Source Version: 7300100

PID:    236
Thread: 0

Exception:  EXC_ARITHMETIC (0x0003)
Codes:      EXC_I386_DIV (divide by zero)

Thread 0 Crashed:
0   com.apple.WebKit              0x954c73cc -[WebTextRenderer(WebInternal)
_extendGlyphToWidthMapToInclude:font:] + 164
1   com.apple.WebKit              0x954c6f93 -[WebTextRenderer(WebInternal) _computeWidthForSpace] +
83
2   com.apple.WebKit              0x954c6e95 -[WebTextRenderer(WebInternal) _setupFont] + 113
3   com.apple.WebKit              0x954c69ca -[WebTextRenderer initWithFont:usingPrinterFont:] + 334
4   com.apple.WebKit              0x954c67e0 -[WebTextRendererFactory
rendererWithFont:usingPrinterFont:] + 104
5   com.apple.WebCore                 0x95788af2 QFontMetrics::floatWidth(QChar const*, int, int, int, int,
int, bool) const + 278
6   com.apple.WebCore                 0x95788998 khtml::Font::width(QChar*, int, int, int) const + 68
```

Divide by Zero

PowerPC

b = 0

```
int a, b;
a = 0;
b = 50 / a;
```

Intel

Structures and Unions

Beware of multibyte types!

```
union Wchar {
    ushort  wch;
    struct {
#ifdef __BIG_ENDIAN__
        char    hi;
        char    lo;
    } b;
#else
        char    lo;
        char    hi;
#endif
    } b;
};
```

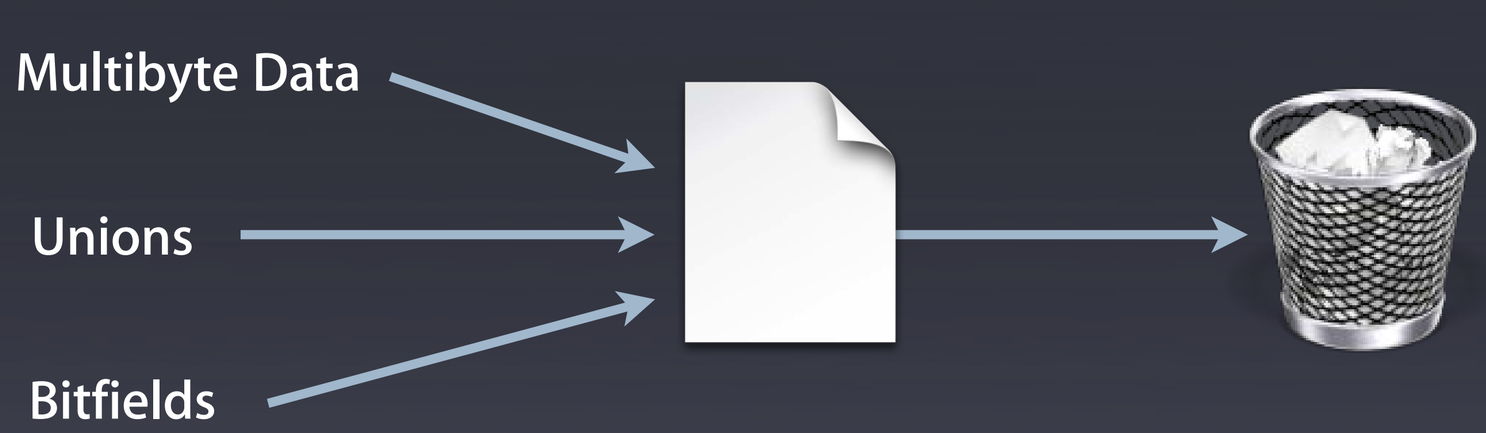
wch = 0x1100

Big Endian

Little Endian

Data File Formats

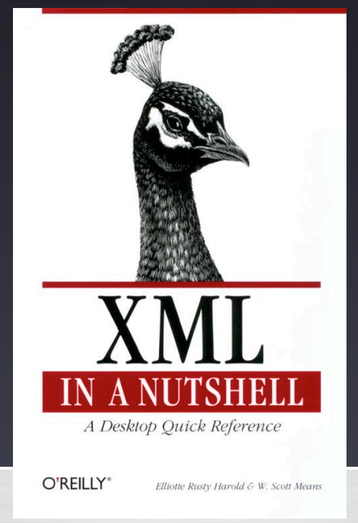
Big Endian **Little Endian**



Data File Formats

Flippers

APIs



XML

Vector Acceleration

Altivec

Many similarities

Program structure is similar

Many operations are similar

Most capabilities are equivalent

Start with C code

Leverage code for other OSes

Use Accelerate whenever possible

SSE/MMX

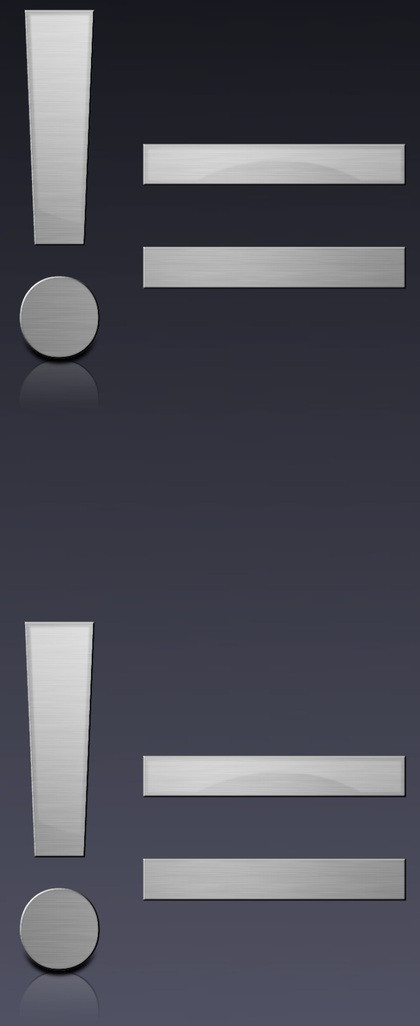
Few differences

Some algorithms are not equivalent

Some semantics are different

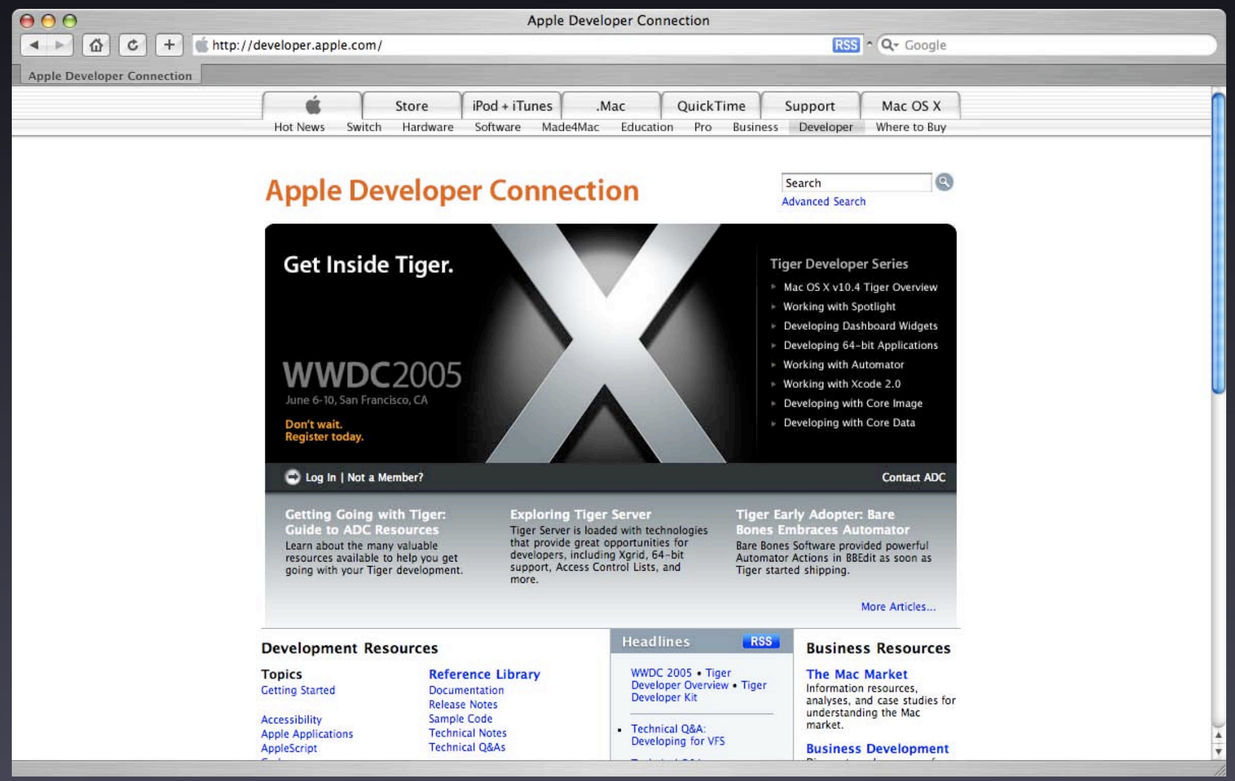
Some capabilites are missing

Platform Assumptions



Want to know more?

Universal Binary Programming Guidelines



http://developer.apple.com
On Your CD

Tweaks
Endians

Summary

Best Practices for User Features

Best Practices for Implementation

Tiger: a New High for the Platform

Universal

Finder File Edit View Go Window Help

Mon 1:15 PM

Spotlight National Park

Show all (203)

Top Hit — Confirmation of reservation

Contacts — Ahwahnee Hotel; Old Faithful Visitor Center

Images — Deer; Bison Sunset; Geyser

Events & To Do's — Yosemite Trip May 2005; Yellowstone Trip December…; Bryce Canyon Trip June 2004

Mail Messages — Confirmation of reservation; Can I come?; Re: Where should we stay?; Where should we stay?

PDF Documents — Ahwahnee Hotel – Overview; Bryce Canyon map; Yellowstone Park map; Yosemite Valley Hiking trails; Old Faithful Lodge – Overvi…

Folders — Yosemite; Bryce Canyon

Spotlight Preferences…

Inbox

Inbox 20
Drafts
Sent
Trash
Junk

From	Subject
Kurt Russel	No escape
Avie Tevanian	Are you gonna go r
Scott Forstall	Check out this Tige
Heather Snow	Let's do this…Mon
Scott Forstall	Monday Review No
Greg Christie	Contact List for Mo
Bas Ording	Work on Server for
Bertrand Serlet	Review this Monda
Chris Cornell	Black Hole Sun
Lenny Kravitz	Where are we runn

From: Scott Forstall
Subject: **Check out this Tiger!**
Date: December 5, 2004 8:05 PM PST
To: Steve Jobs
1 Attachment, 367 KB Save Slidesho

Spotlight: National Park

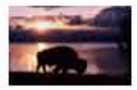
203 Results — National Park

Contacts

Ahwahnee Hotel	Today	2:12 pm
Old Faithful Visitor Center	Yesterday	10:04 am
Bryce Canyon Lodge	Yesterday	8:59 am

Images

Deer — June 27 3:40 PM


Bison Sunset — June 27 3:21 PM

Roadside Rock — June 27 3:18 PM

Bison up close — June 27 11:19 AM

Geyser — June 27 10:21 AM

13 more…

Events & To Do's

Yosemite Trip May 2005	Today	8:15 am
Yellowstone Trip December 2004	November 2	8:30 am
Bryce Canyon Trip June 2004	June 16	10:00 am

Mail Messages

Yosemite reservations	Confirmation of reservation	Today	2:35 pm
Greg Christie	Secret beach	Today	9:24 am
Phil Schiller	Can I come?	January 10	11:43 pm
Greg Christie	Re: Where should we stay?	January 2	9:18 am
Steve Jobs	Where should we stay?	January 2	9:15 am

117 more…

PDF Documents

Ahwahnee Hotel – Overview
Bryce Canyon map
Yellowstone Park map
Yosemite Valley hiking trails
Old Faithful Lodge – Overview

6 more…

Folders

Yosemite
Bryce Canyon
Yellowstone
Zion

Group by: Category, Kind, Date, People, Flat List

Sort Within Group by: Name, Date, Kind, People, Popularity

When: Any Date, Today, Since Yesterday, This Week, This Month, This Year

Where: Everywhere, Home, My Hard Drive

Video Chat with Jessie, Linda and Roger

Finder File Edit View Go Window Help

Mon 1:15 PM

Spotlight National Park

Show all (203)

Top Hit — Confirmation of reservation

Contacts — Ahwahnee Hotel; Old Faithful Visitor Center

Images — Deer; Bison Sunset; Geyser

Events & To Do's — Yosemite Trip May 2005; Yellowstone Trip December…; Bryce Canyon Trip June 2004

Mail Messages — Confirmation of reservation; Can I come?; Re: Where should we stay?; Where should we stay?

PDF Documents — Ahwahnee Hotel – Overview; Bryce Canyon map; Yellowstone Park map; Yosemite Valley Hiking trails; Old Faithful Lodge – Overvi…

Folders — Yosemite; Bryce Canyon

Spotlight Preferences…

Inbox

Inbox 20
Drafts
Sent
Trash
Junk

From	Subject
Kurt Russel	No escape
Avie Tevanian	Are you gonna go r
Scott Forstall	Check out this Tige
Heather Snow	Let's do this…Mon
Scott Forstall	Monday Review No
Greg Christie	Contact List for Mo
Bas Ording	Work on Server for
Bertrand Serlet	Review this Monda
Chris Cornell	Black Hole Sun
Lenny Kravitz	Where are we runn

From: Scott Forstall
Subject: **Check out this Tiger!**
Date: December 5, 2004 8:05 PM PST
To: Steve Jobs
1 Attachment, 367 KB Save Slidesho

Spotlight: National Park

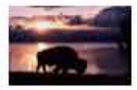
203 Results — National Park

Contacts

Ahwahnee Hotel	Today	2:12 pm
Old Faithful Visitor Center	Yesterday	10:04 am
Bryce Canyon Lodge	Yesterday	8:59 am

Images

Deer — June 27 3:40 PM


Bison Sunset — June 27 3:21 PM

Roadside Rock — June 27 3:18 PM

Bison up close — June 27 11:19 AM

Geyser — June 27 10:21 AM

13 more…

Events & To Do's

Yosemite Trip May 2005	Today	8:15 am
Yellowstone Trip December 2004	November 2	8:30 am
Bryce Canyon Trip June 2004	June 16	10:00 am

Mail Messages

Yosemite reservations	Confirmation of reservation	Today	2:35 pm
Greg Christie	Secret beach	Today	9:24 am
Phil Schiller	Can I come?	January 10	11:43 pm
Greg Christie	Re: Where should we stay?	January 2	9:18 am
Steve Jobs	Where should we stay?	January 2	9:15 am

117 more…

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Video Chat with Jessie, Linda and Roger

Aqua

Frameworks

Graphics

Darwin

Aqua

Frameworks

Graphics

Darwin

Same UI

Same APIs

Type of Project	Making Universal
1. Scripts and Java projects	Just works
2. Unix projects	Recompile
3. Cocoa apps	Small tweak, recompile
4. Carbon apps	Xcode, tweak, recompile

Start Today

- **Sessions & Labs**
  - 7 Universal labs
  - 100 Apple Development Systems
- **Developer Transition Kit**
  - Apple Development System
  - Xcode 2.1
  - Universal programming guidelines

Universal
Adobe Creative Suite 2 Premium
MATHEMATICA 5.1
Save. Invest. Profit.
Quicken
for Mac 2005
QuarkXPress
STUDIOMX
2004
COMIC Life